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THE UNIVERSITY OF CHICAGO PRESS

THE LIBRARY QUARTERLY

A Journal of Investigation and Discussion in the Field of Library Science

Established by The Graduate Library School of the University of Chicago with the Co-operation of The American Library Association, The Bibliographical Society of America, and The American Library Institute.

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THE LIBRARY QUARTERLY

Vol. IV

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PIERCE BUTLER'S

INTRODUCTION TO LIBRARY SCIENCE

"Every lover of books, and every librarian certainly, will find here a new attitude toward books in general and toward knowledge in particular, toward the reader and the student, and toward the library as a social institution. A great many things which the librarian comes face to face with in his daily routine, matters which he has often wondered about, never fully realizing their significance, nor exactly formulating them in his own mind, he will turn to in these pages like long-lost friends he never knew well enough."—*New York Times*.

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THE LIBRARY QUARTERLY

Volume IV

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THE PRESERVATION OF RECORDS IN LIBRARIES¹

THE title presents a problem that has been of general concern for more than a century, particularly to librarians, since they are continually face to face with it. In recent years the problem has become acute because of greater contamination of air caused by congestion of population, the multiplicity of kinds and grades of papers, the ever mounting production of publications, and the increasing use of them by the public.

No class of publication has been immune from deterioration, and the general observance of this by librarians has led to sporadic studies to find causes and remedies, but without very definite results.

During the last four years the Bureau of Standards has been able to make a systematic study of the more pressing aspects of the problem through the use of national government funds supplemented by assistance from organizations outside the government. The work was initiated at the joint request of the American Library Association and the American Association of Book Publishers, who desired information which would assist in formulating standards of quality for book papers and thus minimize losses of records caused by use of unsuitable papers. Through the efforts of librarians, particularly of Mr. H. M.

¹ Publication approved by the director of the Bureau of Standards of the United States Department of Commerce.

Lydenberg of the New York Public Library, research funds for extension of the work to a study of library storage conditions were allotted by the Carnegie Corporation of New York to the National Research Council. The Council administered the funds and assisted in the direction of the studies through an advisory committee representative of librarians, the paper industry, and national government organizations.

Following is a résumé of the more important findings of this investigation, most of which have already been published in detail. These studies were necessarily halted because of the adverse economic conditions, but it is hoped that study of some further important aspects of the problem can be undertaken at some future time.

SURVEY OF STORAGE CONDITIONS IN LIBRARIES

A survey of libraries was undertaken to ascertain the kind and amount of equipment which librarians have available for the protection of the records in their charge and to get information about the visible effects of light, dust, dampness, and similar factors.

Thirteen libraries were selected to give a fair representation of conditions throughout the United States, in both urban and rural localities. Eight of these were personally inspected; information from the other five was obtained by correspondence.

Four of the libraries possessed equipment for the removal of dust from the incoming air of their ventilating systems. Oil filters were used in three of the four libraries attempting dust removal. Every library inspected attempted to reduce the amount of dust in the stacks and on the books by systematic dusting. In several libraries small hand vacuum cleaners were extensively used.

Six of the libraries possessed machinery for humidity control, but in two the apparatus was not in use at all and in a third the plant was effective only in cool weather, owing to the lack of a refrigerator. The average library using average equipment could not control the humidity of the air within its stacks very closely.

Ten of the thirteen selected libraries minimized the effect of the actinic rays of light by the total elimination of windows in three libraries, or by the use of thick glass in the remaining seven. In only one library was sunlight admitted freely to the stacks, and it may be noted that excessive deterioration was apparent. Bookstacks, in general, were found to be lighted by small, frosted incandescent bulbs which were switched on and off as required. This is a very desirable practice. "Yellowing" was observed in hot, dry, and dusty places in the path of direct sunlight. Books stored in diffused light seemed to be little affected. "Brittling" was also observed under the same circumstances. Dusty papers were frequently observed to be discolored and quite often brittle, but no general rule for the correlation of these facts could be formulated. No damp places were observed at the time of this survey, but several spots were pointed out as being damp at other seasons. In these places the papers examined seemed soft and "fuzzy," bearing a white powder which could readily be brushed off. They also showed brown splotches known as "foxing."

EFFECT OF AIR POLLUTED WITH SULPHUR DIOXIDE

Sulphur dioxide, a product of the combustion of fuels, has been proved by many investigators to be very deleterious to leather, textiles, and other organic materials. This gas forms sulphuric acid, which has an intense corrosive action on all forms of organic materials. Statistics from various cities give a range of from 0.2 to 3.0 parts of sulphur dioxide per 1,000,000 parts of the city air, which is equivalent to an annual precipitation of sulphuric acid averaging from 11 to 190 tons per square mile. Despite the great amount of evidence revealing the increasing acidic nature of modern atmospheres, there was no information available on the effect of such atmospheres on paper; therefore a thorough study of this was made.

A series of representative book and writing papers of all grades was exposed for ten days to air containing 2-9 parts sulphur dioxide per 1,000,000 parts of air. At the end of the exposure period it was found that the acidity of all of the papers

had increased greatly and that this effect was accompanied by deterioration of the papers. The folding endurance of some of the highest-grade papers had decreased as much as 30-40 per cent, and changes had taken place in the cellulosic properties of the fibers which indicated that the fiber structure had been attacked. Further experimentation revealed that this destructive effect of acidic air was increased appreciably when the temperature or the humidity was raised.

In order to test these laboratory findings in a practical way, old books of the same issues were secured from libraries in various localities differing in respect to amount of pollution of the surrounding atmosphere. A careful survey of the surroundings of each contributing institution was made in respect to degree of pollution of the surrounding air. In the vicinity of one of the contributors, the New York Public Library, according to information received, the air contained as much as 0.8-1.2 parts of sulphur dioxide per million, while at the other end of the scale is a library such as that of Iowa State College, situated in an area relatively free from industrial pollution. The results of the tests of the papers from these books confirmed the laboratory exposures of papers remarkably well. In every case the paper of books stored in urban libraries contained more acid, were weaker, and showed greater evidence of fiber decay than those stored in localities where the atmosphere is less likely to be polluted. It seems reasonable, therefore, to ascribe the generally poorer condition of the books from the city institutions to the action of sulphur dioxide present in the air.

Having found that sulphur dioxide in air is a dangerous enemy of stored records, the next step was to find means of removing it from the air. This problem was studied at the Folger Shakespeare Library, Washington, D.C. This library is equipped with an air-conditioning system of conventional type with which the air is washed and its humidity and temperature controlled within narrow limits. Tests of the conditioned air in the library proved that when the air was washed with untreated water, it was still appreciably contaminated with sulphur dioxide. Through a series of experimental tests, it was

found that by continuously adding a certain mixture of alkaline salts to the wash water, the sulphur dioxide was completely removed. The best results were obtained when the alkalinity of the water was maintained at a hydrogen-ion concentration of pH 8-9, and the wash water renewed at weekly intervals. The cost of this treatment is negligible. The particular alkaline salts used have a further advantage in that they form a protective coating on metal parts of conditioning apparatus which retards their corrosion. Untreated water used in localities having a high degree of air pollution has caused extensive replacements of metal parts of conditioning equipment within a very short period of its use.

EFFECT OF LIGHT

The yellowing and brittling of paper containing crude ground-wood fibers, such as newsprint, is a matter of common observation, and it was generally believed that the weakening effect of light was always accompanied by discoloration of the paper. This assumption probably accounts for the lack of protection against light observed in some libraries dealing with high-grade papers only. But exposures of book and writing papers of the higher grades, to both sunlight and light from a carbon-arc lamp, which closely simulates sunlight, proved in both cases that even the best papers may be rapidly weakened by light without appreciable discoloration. When each side of papers representative of the different grades of bond papers were exposed to direct sunlight for a period of 100 hours, they lost from 25 to 63 per cent of their original folding endurance. Exposure of each side of two grades of wood-fiber writing papers for 100 hours to the carbon-arc light resulted in losses of folding endurance of, respectively, 86 and 88 per cent. It is evident that extreme care should be taken to protect all kinds of papers from the action of light.

VENTILATION OF LIBRARIES

The materials of which books are made—paper, cloth, adhesives, and leather—are all adversely affected by abnormal

humidity and temperature of the air, as well as by the two deteriorative impurities in air previously mentioned, sulphur dioxide and dust.

Materials such as these tend to become brittle if they are exposed to prolonged high temperature or to air that is too dry. Paper may become tender in an atmosphere of less than 15 per cent relative humidity—not an uncommon condition in the winter months if moisture is not added to the air. Adhesives may become brittle if the relative humidity drops below 40 per cent. On the other hand, the growth of mildew is promoted by excessive moisture in the air. Mildew is caused by various vegetable organisms propagated by spores which are always present in the air. These spores subsist on different kinds of food, and all of the organic materials in books are subject to their attack. They require an abundance of water. If the relative humidity is kept below 80 per cent, paper, cotton, or leather will not contain enough water to support their growth; glue and starch will, but these materials can be made resistant by addition to them of beta-naphthol or other bactericides. The growth of spores is affected also by temperature. They grow very slowly below 40° F., very rapidly at optimum temperatures, which vary with the species, and are killed by high temperatures—some varieties as low as 100° F.

The character of dust carried in the air varies, of course, with the nature of the locality. It usually consists largely of silicious material, which has an abrasive action, and often soot. Whatever its composition may be, it tends to condense acidic moisture from the air. With the precautions usually taken to remove dust, it does not present a serious hazard. Dust is commonly removed from air entering libraries by use of washers and filters.

Deterioration caused by sulphur dioxide has already been discussed. Its action, and other chemical reactions that cause decay of book materials, are accelerated by high temperatures and high humidities.

The relative humidity in a building, if the air is not conditioned, is likely to be too low in cold weather and too high in

warm weather. When cold air entering a building is heated, its relative humidity is decreased, and in continued cold weather the air in the building becomes very dry unless moisture is added to it. In warm weather prolonged periods of high humidity are not uncommon, and if a period of relatively cool weather is followed by warm, damp weather, sufficient moisture to cause mildew may be desposited by warm, moist air coming in contact with cooler books or other objects. It is necessary, then, in maintaining the desirable temperature and humidity conditions in buildings, to heat the air and add water vapor to it in periods of cold weather, and to cool the air and remove moisture from it in hot weather. The optimum atmospheric conditions for the preservation of records in libraries, and for the comfort and health of the personnel, are a temperature of from 70° to 85° F. and 45-55 per cent relative humidity. A positive circulation and diffusion of the air through the library, or at least through the storage stacks, is desirable for proper control of temperature and humidity.

QUALITY OF PAPER

As the present types of record papers have not been in existence for more than twenty-five to one hundred years, the time varying with the kind of papers, the relative permanence of the better grades as compared with the old hand-made papers still remains to be found by further experience with them. To obtain information on the influence of the different kinds of fibers on the aging qualities of papers, and to define the time periods covering transitions in fiber usage, paper from over three hundred old books and newspapers were examined for their condition as related to the kinds of fibers present. The specimens covered quite thoroughly the transitions in paper-making practices from about 1830 to the full development of the modern types of papers and their use about 1900. The papers ranged in condition from those showing little or no evidence of discoloration or brittleness to others which exhibited a dark, brown color and broke readily when creased.

The fiber analyses of these old papers indicated very similar

usage in the past of the different kinds of fibers for newspapers and books. Rag fibers were found exclusively until 1868, when the first straw fibers were found, followed by ground wood in 1869 and chemical wood in 1870. From 1867 to 1895 the newspapers and many of the book papers were composed of various mixtures of rag, straw, chemical wood, and ground-wood fibers. Apparently the present type of newsprint paper, which is composed of a mixture of unbleached chemical-wood fibers (sulphite) and ground-wood fibers, became well established by 1895. Ground wood was found extensively in book papers until 1904. Since that time the book papers have generally been composed of bleached chemical wood and rag fibers, alone or in mixture. The papers composed of rag fibers were nearly all in excellent condition, and those containing straw and chemical wood fibers, or mixtures of these with rag, were mainly in good condition. On the contrary, nearly all the papers which contained ground wood in appreciable quantity were badly deteriorated. The only important class of record paper in which ground wood is still used is newsprint, and the librarian knows from bitter experience how difficult it is to preserve newspapers. Fortunately, the *New York times* initiated in 1927 the practice of printing library editions on high-grade paper, and this innovation has been followed by other publishers.

At the request of the American Library Association and the National Association of Book Publishers, a study was made of the quality of the present commercial book papers for the purpose of assisting in the establishment of standards for such papers from the viewpoint of their use for records. In this work, twenty-eight commercial papers, representative of the different grades, were subjected to thorough tests for chemical purity, strength, and stability. Their stability was measured by subjecting them to an accelerated aging test, which consists of exposure to air at a temperature of 100° C. for seventy-two hours and measuring any changes in strength and chemical properties. While the validity of this test as a measure of the relative resistance of papers to deterioration from internal causes is a debatable matter, the Bureau has found that it agrees well with results

of exposures to sunlight, exposures at more normal temperature, and a four-year period of natural aging. As in the case of the old book papers studied, the more stable papers were those containing the purer fibers, that is, fibers high in alpha cellulose and low in copper number. Good quality in this respect had no constant relation to the source of the fibers or their initial quality, which points to the necessity of careful processing of fibers, as well as careful selection of them, for the manufacture of stable papers. In many cases high acidity from the alum used in rosin-sizing the paper was apparently the cause of poor stability. Rosin itself has been shown to be a potential promoter of deterioration, and although the amounts found in these papers were not excessive, it is questionable whether the use of rosin in book paper is necessary. On the other hand, clay-filler, the remaining principal component of book paper, was considered to have no harmful effect since it may be considered chemically inert.

From the foregoing considerations a classification of book papers based on fiber purity in terms of alpha cellulose and copper number, a minimum of injurious chemicals, and strength was suggested. This comprises four grades, ranging from paper for permanent records to paper for records of current value.

PROTECTIVE AND REPRODUCTIVE MEASURES

Librarians and others desirous of preserving newsprint and other similarly short-lived papers are confronted with the necessity of treating the paper in such a manner as to render it more resistant to handling and to retard the processes of deterioration as much as possible. The application of Japanese tissue, a thin, tough tissue paper of high chemical purity, has been extensively practiced, using a mixture of rice starch and tapioca dextrin as an adhesive. This material increased the strength of newsprint very greatly. Paper treated in this manner also resisted the effects of the heat test satisfactorily. The tissue itself showed practically no change after subjection to the accelerated aging procedure. However, this method of treatment was found to be disadvantageous in that the weight of treated paper was

almost double the original weight while the bulk was trebled, which is undesirable. Moreover, the ease with which the contents of the newspaper were read was considerably diminished.

It was thought that this last difficulty could be removed by substituting transparent viscose cellulose sheets for the Japanese tissue, but the cellulose sheeting itself exhibited unsatisfactory permanence qualities. The recent development of cellulose acetate foil, 0.001 inch thick, led to the trial of this material. Since cellulose acetate is thermoplastic (i.e., flows under the influence of heat and pressure), it was easily applied to newspapers by placing a sheet of the newspaper between two slightly larger sheets of cellulose acetate foil and transferring this combination to a hydraulic press where, under the action of heat and pressure, one homogeneous unit was obtained. Newspapers treated in this manner were found to be very stable to the heat test and to the action of light from a carbon arc. Moreover, no impairment of legibility was produced, nor was there any objectionable increase in bulk, since the thickness of the newspapers was increased only 0.0005 inch by this treatment. However, the weight of a specimen of newsprint protected by cellulose acetate foil (0.001 in. thick) was found to be approximately two and one-half times that of a similar unprotected specimen.

Cellulose nitrate sheetings, which include celluloid, are relatively unstable and may have a deteriorative effect on papers brought in contact with them.

When reproduction of records becomes necessary, because of failure of the papers containing them, they may be photostated, reprinted by use of photolithography, or photographed on motion-picture films. Photostat prints are stable and do not fade if they are properly fixed and washed. Extensive tests of photostat printing papers showed that while there is a wide range in their quality, the best ones are of very high quality and are considered suitable for permanent records. When a large number of copies are desired, photolithographic printing is more economical than photostating, and, of course, the prints are equally stable. It is questionable whether the film photographs

are sufficiently stable for records of perpetual value, but no investigation of them was included. The images are inclined to fade, although usually very slowly, and the serviceability of films can be prolonged only by keeping them under certain conditions of temperature and humidity which are difficult to maintain. The use of glass plates for permanent miniature photographs is worthy of consideration. The prints could be reproduced from the glass plates onto film slides for convenience in use and to minimize breakage of the plates.

DISCUSSION OF RECOMMENDED PRACTICES

Light, acidic air, adverse humidity and temperature, and poor quality of paper are indicated in the foregoing as deteriorative influences on stored records. Some means of combating these influences have been suggested, and an analysis of these suggestions in respect to their efficacy and practicability seems desirable.

The necessity of avoiding exposure of paper to direct sunlight is clearly shown by the results of the observations of its effect in libraries and by the laboratory measurements of its deteriorative effect. Records consulted frequently and exhibits are necessarily exposed considerably to diffused light. While no study of the effect of diffused light on paper has been included in this investigation, in experiments made at the Bureau diffused sunlight, such as ordinary room light from a north window, deteriorated textile materials quite rapidly, although slower, of course, than direct sunlight. It is reasonable to believe that paper would be affected similarly. There is need of more definite information as to the kinds of light-rays most harmful to paper and practicable means of filtering out such rays in library illumination.

The purification of air in congested areas is a necessary protective measure. It may be necessary elsewhere, as some unusual condition in the vicinity of a library may cause contamination in unsuspected places. The advice of a competent analyst should be obtained before the testing of library air for sulphur dioxide is undertaken, since incorrect testing procedure or

technique may lead to large errors in the test data, and the tests should be extensive enough to cover fluctuations in the content of the acidic gas that usually occur with change of season, weather, prevailing winds, or other influences. The recommended washing of the library air with alkaline water should generally suffice for its purification.

Close control of humidity and temperature of the air and its positive circulation and diffusion through the library were mentioned as being necessary to preserve the strength and flexibility of record material, and to minimize the growth of molds and fungi. The only safe and efficient means of maintaining such conditions is through the use of a complete air-conditioning system with which the air can be humidified, dehumidified, and washed. To make certain that the desired atmospheric conditions are being maintained, recording hygrometers and thermometers should be used and their accuracy tested occasionally with a psychrometer. The planning of air-conditioning equipment should be done by technicians who are particularly experienced in this branch of engineering. Air-conditioning has proved its worth in a wide variety of buildings, both private and public. Its cost is not incommensurate with other building equipment and operating expenses, and its adaptation to libraries presents no difficulty. Mr. Thomas M. Iiams, in the article, "Preservation of rare books and manuscripts in the Huntington Library," describes the excellent results obtained with air-conditioning in that library during the preceding two years, and remarks: "There is no doubt that this important phase of library economy has been sadly neglected. Too often the initial cost of installing an air conditioning plant has prevented library boards from considering it, but still more frequently the benefits of such a system have not been fully appreciated."²

The tests of old publications revealed the deleterious effects of impure fibers in papers. The study of the present papers showed that their stability is directly related to the purity of the fibers and the amount of deteriorative components associated

² *Library quarterly*, II (October, 1932), 386.

with the fibers. Sufficient information was obtained to formulate a recommended classification and specification of papers for the various record uses, which is based on paper purity and strength. The official adoption of standards of this kind by library associations would assist materially in reducing the considerable cost to libraries of preserving and replacing valuable records contained on impermanent paper. Only by the use of adequate specifications can the desired permanence of record papers be realized, and the responsibility for promoting the use of suitable standards of quality would seem to rest particularly on librarians since they are the most vitally concerned.

The information on materials and processes used for protection and reproduction of records that may be lost through decay of paper is very incomplete, and further study of them would no doubt lead to improved practices and results.

The complete details of the various studies outlined are contained in publications issued by the National Bureau of Standards, Washington. A complete list of them can be obtained from the Bureau.

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A STUDY OF THE FACTORS INFLUENCING THE DIFFICULTY OF READING MATERIALS FOR ADULTS OF LIMITED READING ABILITY

THE progress of adult education depends to a large degree upon the development of reading materials which are adapted to the abilities of adults who are limited in their skill in reading. Present materials are inadequate in this respect. Librarians have often maintained that much of the material available for adults of limited reading ability is too difficult. Furthermore, there are no scientific techniques by means of which to make an accurate estimate of the reading difficulty of books and pamphlets on the library shelves. The inevitable result is the fact that adults of limited reading abilities do only a slight amount of reading of non-fiction materials. The inadequacy of appropriate materials constitutes one major cause of this deficiency.

This situation can be improved through the development of methods by which the easier reading materials can be identified and which would serve to guide writers in preparing materials which can be understood by adults of limited reading ability. In other words, investigations are needed to discover the characteristics within the reading materials themselves which affect their ease of comprehension. A critical analysis of the widely varying results of previous studies indicates the impossibility of determining the factors in the reading materials which make them understandable unless the investigations separate the influence of factors within the reading material from those outside. The reader's interest in the topic treated in the reading matter, his ability to read, the kind of comprehension appropriate to the purposes of the reading matter, and the difficulty of the ideas developed in the reading matter are all factors which greatly affect his comprehension of the material read but are distinct from the characteristics involved in the materials themselves which may be changed so as to make these ideas

understandable to adults of limited reading ability. Some of the effects of these external factors are easily noted. For example, stenographers, reading on a topic like "marriage" in which they have evinced high interest, are more strongly motivated and put forth greater effort to comprehend than when they are reading about the international aspects of the gold standard. Long sentences usually provide greater difficulty for young children than for adults with more mature reading abilities. The characteristics of materials which tend to cause the reader to feel the rhythm of the writing, as in poetry, may be different from those which make it easier for the reader to note specific details, as in a scientific treatise. Writing which in itself is easy to follow may result in more meager comprehension when dealing with the difficult concepts of relativity than when dealing with the simple concepts of barter. The various factors not in the reading materials themselves must be controlled in order to determine the effects of factors within the materials.

The study which follows is intended to illustrate the possibility of determining the factors which influence the difficulty of reading materials when the topic treated, the group of readers concerned, and the purpose of the reading is held constant. This is only a single exploratory study. Obviously, a large number of similar investigations are necessary to provide more intelligent guidance in writing and selecting reading materials which will be comprehended by given groups of people. Furthermore, to check the results of this study, experimentation is needed in selecting more materials and in writing materials according to the specifications indicated to discover whether they are consistently useful in selecting and preparing reading matter which is more easily comprehended by adults of limited reading ability.

Five steps were involved in this investigation:

1. Samples of reading materials dealing with personal health were selected for use in the experiment.
2. Tests were developed which would measure the ability of adults to comprehend these materials.
3. The materials and the tests were given to groups of colored adults of limited reading abilities.

4. Correlations were run between a series of factors contained in these selections and the index of difficulty as discovered for each selection by the use of the reading tests.
5. A multiple regression equation was developed by means of which the lay worker or librarian can estimate the difficulty of personal health materials not previously tested.

This study was limited to reading materials dealing with problems of personal health. In comparing the difficulty of various materials it was necessary to choose materials which dealt with the same topic since the interests of adult groups vary with the subject treated in the materials, and variations in interest are likely to affect the effort put forth by the reader, thus affecting his comprehension. Since differences in comprehension due to differences in interest are not inherent in the reading materials but are due to the reader's attitude toward the topic, it was important that materials be chosen which dealt with the same topic and that the subject be one of great interest to these adult groups so that their reading would be adequately motivated. Waples and Tyler¹ have shown that the topic of personal health is of high interest to all adult groups.

Furthermore, one of the writers had previously collected data on the technical vocabulary of literature on health which facilitated the analysis of materials dealing with this subject.

METHODS USED TO DETERMINE THE DIFFICULTY OF THE READING MATERIALS

Difficulty of reading materials is to be interpreted in this study as meaning that the average comprehension on the part of readers of such materials is low. An examination of a wide variety of health materials indicates that comprehension may conceivably be measured in terms of one or all of these possible major outcomes:

1. An emotional reaction, the nature and potency of which depends upon the difficulty or the interest of the article.
2. The ability to recall specific elements of the reading.
3. The ability to form general conclusions on the material read.

¹ D. Waples and R. W. Tyler, *What people want to read about* (University of Chicago Press, 1931), p. 286.

The emotional outcome has not been tested at all in this study, except in so far as we can assume that it is positively correlated with ability to comprehend the reading materials. There might be value in having the reader indicate his interest in the article after he has read it, and then determine the relationship existing between such interest and ability to comprehend the article satisfactorily. It might also be desirable to discover other emotional reactions of the reader and to note as before the relationship of these reactions to comprehension. No attempt, however, was made in this study to measure such outcomes.

It has been assumed that the most fruitful outcome for study in this investigation is the ability of adults to read various types of non-fiction materials and to abstract therefrom the general conclusion which may reasonably be drawn from the content. This type of reaction is more often demanded of the reader in the field of health than is the reaction to the specific elements. Further, since the ability to draw general conclusions depends in some measure upon ability to react satisfactorily to the specific elements, there is little doubt that some portion of the latter outcome has been tested by the technique used. It should further be noted that the terms "specific" and "general" are relative, not absolute. A reaction that is specific for one paragraph may be a general conclusion in some other paragraph.

SELECTION OF READING MATERIALS

In selecting materials to be tested certain criteria constituted the major considerations.

First, authoritative materials were chosen. It is manifestly undesirable to utilize reading materials which, because of their inaccuracy, might have harmful attendant outcomes. Second, the materials chosen were of a type easily accessible to adults. If a study were made of the reading difficulty of materials which are rarely found in current textbooks, books of non-fiction, newspapers, and magazines, the results would have slight value unless techniques were thereby developed which could be used to evaluate available non-fiction materials. The use of

these two criteria led to the selection of a series of current syndicated health articles by Drs. Brady, Evans, and Copeland to be utilized in one phase of the study (see Appen. I).

Long articles were avoided, since there is evidence that adults of limited education prefer to do their non-fiction reading in short bits instead of long ones. As a matter of fact, most of the newspaper health articles examined were approximately four hundred words in length.

For other phases of the investigation selections dealing with health were taken from textbooks and magazines. They represented a wide variety of authors and topics. Every variant which might possibly affect difficulty was sought in collecting the materials. The material selected was never less than one paragraph in length, and usually it was more. An attempt was made in all cases to get a unit of thought. Most of the material from the health columns of daily newspapers included the entire article.

The first series of tests showed that the material from the health columns was too difficult for our readers. Hence, an attempt was made to get simpler materials for a second test. Short excerpts were then chosen from the first of a series of elementary-school textbooks in health, a few from junior high school textbooks in health, and two items from books that were being used for Americanization work. We wished to test more of the material which is actually being used in adult education work, but the materials available on the topic of personal health were meager in amount and poor in quality. However, the textbook materials used in the second test were probably somewhat more appropriate for adults of limited schooling since they were prepared for children in the upper grades of the elementary school (see Appen. II).

In spite of these precautions, the reading materials for the second test also proved too difficult. In the next attempt, therefore, one of the writers prepared as easy materials in the field of health as it was possible for him to write with the present limited knowledge of the factors which made the materials diffi-

cult (see Appen. III). In general, the principles followed in writing the paragraphs for the third test were these:

1. Elimination as far as possible, of vocabulary difficulties both of technical and non-technical words.
2. Writing the materials in an informal style, making extensive use of anecdotes about persons, conversation, and answers to questions.
3. Elimination of material not contributing directly to the main ideas in the selection.

MAKING THE TESTS

The material in the first of the series of three tests was selected from the health columns of Drs. Brady, Copeland, and Evans. These articles are syndicated in a number of newspapers throughout the country. They represent one of the best and the cheapest opportunities afforded the adult of limited education to extend his range of information in the field of health. By testing the reader's comprehension of such articles, it is possible to determine within the limits of the errors of sampling and measurement the extent to which such health columns can function as a device for adult education.

It was assumed that there was implicit or explicit in these units of material a generalization which would adequately summarize the article. It was also assumed that a good test of the difficulty of such materials for adults of limited education would be the success with which they were able to formulate such a conclusion. It was further assumed that skilful reading of such a unit of material involved the ability to tell what was not in the unit. In other words, a person who has a clear-cut notion of what is found in a unit of reading material ought to be equally well aware of what is not found there. It should be further pointed out that to have an individual make two separate reactions to the same paragraph greatly increased the reliability of the test results.

In order to have a finer measuring instrument it was assumed that some credit should be given to the adult who could draw a conclusion that was close to either of the two correct answers for each paragraph. Therefore, five choices were included for every test item: the best conclusion, the worst conclusion, and

three others—all of them distributed as far as possible in equal intervals of difficulty.

A variety of methods might have been used for testing the ability of readers to draw satisfactory conclusions from the reading materials. Adults of limited reading ability could be asked to read the selections and then state or write out the best conclusions which they could draw from their reading. This technique was ruled out because it would involve expenditures beyond the scope of the budget, since it would necessitate the evaluation of a large number of responses by a group of judges. Furthermore, the ability to express a conclusion orally or in writing may not be a true measure of the ability to draw such a conclusion mentally.

The technique used was to provide five responses for each selection, from which the reader was to choose the one he thought was the best conclusion to the selection and the one he thought was the poorest. These responses were obtained by having two expert readers independently formulate what they believed to be the best and worst conclusions to each selection and then in conference to iron out minor differences in the statements. Their conclusions were submitted to a small group of adults whose suggestions for changes were followed when they seemed pertinent. The three conclusions lying between these best and worst conclusions were formulated by one of the writers and his research assistant. In formulating these conclusions an attempt was made to formulate them in language of less difficulty than the language used in the reading selections.² This precaution was necessary so that the limiting factor in the readers' comprehension would be the difficulty of the reading material in the selection and not the difficulty of comprehending the meaning of the conclusions. In this study the writers assumed that they formulated conclusions in language easier to comprehend than the language used in the reading selections. Hence, only the reading selections themselves were analyzed for elements of difficulty and not the series of five conclusions which follow each selection.

² Samples of the test are given as Exhibits A, B, and C.

ADMINISTERING THE TESTS

Investigators who wish to discover certain facts regarding the abilities of children can secure in the public school an un-failing source of subjects. They have but to convince the principal or teacher that their project promises to secure useful data, and entrée is secured. *Rapport* with the pupils is easily established, and children usually do such tests with a great deal of zest. Moreover, there are writing desks upon which pupils can place their test blanks.

The investigator of the abilities of adults, however, is not so fortunate and must contend with a series of difficulties, not only in securing the subjects, but also in securing favorable mechanical conditions under which to give the test. With the exception of the comparatively small number of adults in night schools, he has no adults undergoing educational training to whom he can turn. Under normal conditions of employment, adults must be tested in the evening, since they are employed during the day. Female subjects can sometimes be secured through the co-operation of clubs and organizations, but certain difficulties arise here, as will be pointed out shortly. Further, adults of limited reading ability are diffident about exposing their ignorance. For example, the negroes who found themselves unable to read our tests usually explained the deficiency as follows: "Ah'm sorry, boss, but ah left mah glasses at home." Finally, when adult groups volunteer to take the test without pay, they sometimes take the test with such a lack of seriousness that doubt is cast on the validity of the findings.

Most of the foregoing difficulties were faced by the investigators when they attempted to secure subjects for the tests. The night schools conducted under public-school auspices were not open during the summer when this investigation was being conducted. Co-operation was promised, however, should the investigation be extended into the fall and winter.

The following experience with a vocabulary test given to a group of women belonging to one of the clubs in the community house in a poor section of the city of Columbus illustrates one

of the difficulties enumerated in the preceding paragraph. It was a volunteer group composed of native-born American women, almost none of whom had ever taken work in high school. A list of words was given them and they were to mark the words whose meaning they knew. They were then to take a multiple-choice test on these words. After the directions had been given and the group had begun the test, they conversed, glanced at each other's papers, looked upon the whole thing as a lark, and the only value of the final results was to suggest very strongly that such groups were not satisfactory research subjects.

Another method of securing subjects offered high promise, but proved inadequate in the one trial which we gave it. We believed that church groups composed largely of adults of limited education might be very willing to co-operate with us in consideration of a donation to the church funds. One colored pastor in Columbus promised us a group of thirty people, members of his Sunday-school class of young married people. When the day for testing arrived, the number had been reduced by the pastor to twelve. And, to cap the climax, when the appointed hour for testing arrived, the pastor forgot his appointment, took a nap instead, failed to wake up in time, and we were unable to give the tests.

Volunteer groups having failed as a source of subjects, we decided to try our luck at securing subjects by paying them for their time. One of the workers at the Godman Guild in Columbus, a community house in a district composed almost entirely of negroes, suggested that when indigent adults came to the Godman Guild once a week to apply for aid from the community fund, she would inform them to return the following Friday at 2:00 P.M. to take some reading tests. She also told them that they must be able to read and write, that they would take some reading tests, and that they would be paid twenty-five cents for so doing. The social worker at this community house informed the investigators that the twenty-five cents was psychologically a good amount to offer and that a smaller amount, even for less time, would not be so satisfactory.

This method of securing subjects proved satisfactory. On

only a limited notice we were able to assemble from thirty-five to sixty adults each time the tests were given. Voluntary, unpaid subjects would hardly have been willing to put in continuous work for one hour or more on such tests on July afternoons when the temperature was around 95° F. Further, our paid subjects came when it was convenient for the investigators to use them. Since they were being paid for what they were doing, they were under an obligation to follow instructions. This method is to be recommended, therefore, when sufficient funds are available to carry it out.

When the subjects first assembled, the Monroe Silent Reading Test was administered to determine their general level of reading ability. They were then given the first set of reading selections on health, including the test of their comprehension of these materials.

Tests 2 and 3 were administered with greater facility than Test 1. Each individual was met at the door and asked whether he could read and write and was also questioned concerning the extent of his school work. If the replies suggested strongly that he would fail in the test, he was not allowed to take it. Further, the name of each individual was secured at the door and his previous record on the Monroe Reading Test and his score on the test covering the first set of health materials were noted in order to determine whether he would be able to do the subsequent tests.

ANALYZING THE FACTORS CAUSING DIFFICULTY

The purpose of the study was: first, to secure a valid criterion of the reading difficulty of a series of paragraphs; then to make quantitative studies of the factors in the paragraphs which might be influencing the difficulty; and, finally, to run a series of correlations between the factors and the index of difficulty. A number of factors were chosen, therefore, for quantitative evaluation. Each of the factors is here described.

1. *The technical vocabulary.*—Technical vocabulary is defined, for the purposes of this study, as those words having their only meaning in the field of health or having a specialized mean-

ing when applied to this field. Technical words in health can be divided perhaps somewhat loosely into what one might call their structural and functional aspects. The structural vocabulary consists primarily of nouns, such as "acid," "alcohol," "alkali," "mercury," and "iodine." The functional words connote activity, namely, "cohere," "decay," "sterilize," etc. Some words have both a structural and a functional aspect, since they can be noun in one form and verb in another.

It should be pointed out that the term "health" is very much like the term "education." Strictly speaking, there is no technical vocabulary in education or in health. There are only technical vocabularies in chemistry, zoölogy, bacteriology, and allied scientific fields.

A number of words that might be considered technical are eliminated from consideration as technical health terms, because we have chosen to label as "easy words" those 769 words which are common to the word list of the International Kindergarten Union, and the most frequent thousand words in Thorndike's *Teacher's word book*. The nature of these "easy" words will be commented on later in this section.

It seems plausible that there will be an increase in the difficulty of reading materials in health when the technical vocabulary is increased in amount or difficulty. The increase in amount of different words, where there is no increase in difficulty requiring the reader, as it does, to keep a wider variety of ideas in mind at one time, is likely to decrease his success in reading such materials. That an increase in the unfamiliarity of the technical terms is likely to increase the difficulty of understanding the reading materials in which such technical terms appear is patent. In certain cases this will be due to the fact that the experiences themselves are utterly foreign to the readers, and in others it will be due to the fact that the symbols used are not sufficiently well related to the experiences which the reader has already had. An example is the word "absorb." The equivalent, "soak up," would be well known to almost everyone. The term "alkali," however, could not be so easily explained.

The technical vocabulary used in this study was obtained

from a wide variety of sources. The major source was a study of the health vocabulary and health problems found in twenty-seven different books and textbooks on health. To it was added the technical vocabulary found in an analysis of thirty different articles selected from health columns in newspapers. This final composite list included more than two thousand terms. It was now reduced to approximately one thousand terms, excluding those terms not likely to occur in the health materials written for the layman.

At the same time that Test 2 was given, this list of one thousand terms was presented to the group. Each reader was asked to put an X in front of every word in the list which he knew. The subjects were told that it did not make any difference how many or how few words they checked. They were also told that the three examiners would go about the room as they were doing the test, and question them on the words which they checked as known. The examiners discovered only two persons who were "fudging." It was thought that adults of limited education might be inclined to exaggerate what they knew, but this random check-up did not disclose this tendency.

The thirty-eight papers secured in this fashion were thrown into two random halves, and the number of persons in each half checking each word was tabulated separately. The two sets of numbers were then correlated, which gave a coefficient of 0.90. When the Spearman prophecy formula was applied, it was found that the estimated correlation of this group of thirty-eight papers with another thirty-eight papers from persons of similar abilities would yield a coefficient of 0.94. This means that these persons agree extremely well among themselves as to the words which they believe they know. It does not settle the question of validity, although this close agreement does suggest that the method is fairly valid. The studies of a number of investigators have shown that the judgment of the difficulty of a word will usually correlate 0.80 or better with actual tests of the difficulty of such words. For fifty of these health words the coefficient of correlation between the group judgment and the difficulty determined by a multiple-choice test was 0.79.

The percentage of persons "knowing" each word in the total list was now tabulated and became the index of the difficulty of the technical health words.

2. *Easy words*.—It would appear that one of the most important factors in the relative difficulty of reading materials would be the percentage of the total words which are "easy" words or the number of different "easy" words contained therein. Two reasons can be given for such an assumption: the more easy words, the more familiar the content is likely to be, and, conversely, the fewer hard words, the less unfamiliar the content will be.

A word was considered "easy" if it was common to the most frequent thousand words in Thorndike's *Teacher's word book* and the word list of the International Kindergarten Union. Seven hundred and sixty-nine words were found to be common to both lists. Since these words are probably known by children before entering the first grade, and since they are among the thousand words most frequently used in general reading materials, it is possible to consider them as of zero difficulty to adults of limited reading ability. It should be pointed out that there are a few practical difficulties in the use of such a list. Many of the words in the Thorndike word list are homographs, e.g., words spelled alike but of different meaning. It was necessary, therefore, to note after certain of these 769 words the meaning which was assumed to be the easy one.

3. *Hard non-technical words*.—There are a number of words in reading materials on any technical subject which are hard although non-technical in their nature. It seems plausible that the number of running words of this kind and the number of different words of this nature might be one of the factors influencing the reading difficulty of a paragraph.

It was believed that Dale's study of the unfamiliarity of eight thousand common words for pupils in Grades IV, VI, and VII would be of assistance at this point. This study made use of the judgment of pupils in these grades as to the familiarity of words. To check the applicability of this list for use with adults there was included in the vocabulary test used with the colored adults

slightly more than one hundred non-technical words, which were also in the Dale list. When the scores on these words for the adults were correlated with the corresponding scores for the children, the coefficients of correlation were as follows:

Adult scores with scores of fourth-grade pupils	0.42
Adult scores with scores of sixth-grade pupils . . . . .	.65
Adult scores with scores of eighth-grade pupils . . . . .	.64
Adult scores with average score of fourth- and sixth-grade pupils	0.59

Since the words known by adults correspond most closely with the words known by pupils in the sixth and eighth grades, a record was made of the non-technical words that were rated in the Dale list as difficult for sixth- and for eighth-grade pupils.

4. *Types and length of sentences used.*—It seems likely, when sentences are used which involve suspension of one's judgment as to the outcome until the entire sentence has been covered, that the difficulty would be increased. It would thus appear that length of sentence might correlate positively with difficulty and that complexity of the sentence as measured by whether the sentence was complex or compound would also increase its difficulty over that of the simple sentence. In final analysis of the health selections so few complex-compound sentences were found that these were classed with the compound, thus leaving three categories: simple, complex, and compound or compound-complex sentences.

5. *Number of clauses and prepositional phrases.*—Inclusions of clauses and prepositional phrases in a paragraph of reading materials may increase the difficulty either by its effect on making the sentence longer or through increasing the number of ideas which must be kept in mind while one is trying to get the thought of a sentence. A count was made of the number of clauses and prepositional phrases appearing in each reading selection on health. A separate count was made of clauses beginning with what and whatever, where and wherever, when and whenever, in contexts which did not imply simple interrogation and did imply indefiniteness or indeterminateness of

time or place or subject. This definition was adequate to enable two clerks, working independently, to obtain the same values when counting these clauses in the various selections.

6. *Number of personal pronouns.*—The hypothesis that the informality with which an article was written would increase the ease with which it could be read seemed a tenable one. Hence, a count was made of the number of pronouns of the first, second, or third person appearing in each health selection so that the relationship between such appearances and the difficulty of the article might be determined.

7. *Number of monosyllabic words.*—Several writers have maintained that there is a relation between the percentage of monosyllabic words in a passage and the reading difficulty of that passage. In this study, therefore, a count was made of the percentage so that the degree of relationship existing between this factor and the difficulty of the reading selections might be discovered.

8. *Other factors affecting difficulty.*—There are a number of other factors which were compared with the difficulty of these selections on health. One of these was the percentage of words beginning with *e*, which has been suggested by Lewerenz as a very good predictor of reading difficulty. However, these factors either had but slight relation to difficulty or else were closely related to other factors which had already been used. None of these factors added any appreciable amount to the size of the multiple correlation coefficient obtained from the factors previously described.

ESTIMATING THE DIFFICULTY OF READING MATERIALS

The method used in determining the degree of comprehension with which adults of limited education read selections of differing difficulties has already been described. A group of persons of limited education were sampled by means of this method and a record made of the average degree of comprehension with which the group read each of seventy-four selections dealing with health problems. Although the group selected for study was not large enough to be a completely adequate sample of similar populations at large, the scores by which the difficulty

of the selections was determined have a reliability of 0.75 as computed by splitting the entire group of persons into two random halves, calculating the scores on the selections for the two half-groups separately, correlating the two sets of scores, and predicting by the Spearman prophecy formula the probable correlation between two groups, each of which is the size of the entire group sampled. This reliability is high enough for the scores to furnish an index of relative difficulty of the selection, but the study will need to be supplemented in the future by a larger and more inclusive sampling of adults of limited education.

After the average score for each selection had been computed, thus furnishing an index of its reading difficulty, it was possible to compare the difficulty of the selections with each of the several factors characterizing these reading materials which were described in the previous section. The several factors analyzed and the coefficient of correlation between each factor and the group score for the selection is shown in Table I. It is necessary to remember that the higher the score on a selection, the greater the group comprehension of the selection. Hence high scores indicate selections easily comprehended, and low scores selections difficult to comprehend. Thus a negative correlation coefficient means that the factor is positively correlated with difficulty while a positive correlation coefficient means that the factor is negatively correlated with difficulty of comprehension.

An examination of this table reveals the fact that there were many factors correlated with reading difficulty in these selections dealing with health. The factor most closely related to difficulty of comprehension was the *number of different technical words in the selection*. The factor next most closely related to difficulty was the *number of hard, non-technical words in the selection not known by 90 per cent of sixth-grade pupils*. However, the *number of different hard, non-technical words in the selection* was almost as closely correlated with difficulty. It will be noted that some of the factors analyzed show practically no relation to difficulty of comprehension. If these selections are typical of the non-fiction reading material for adults, the latter factors

TABLE I
COEFFICIENTS OF CORRELATION BETWEEN VARIOUS FACTORS
FOUND IN READING MATERIALS AND THE AVERAGE COM-
PREHENSION SCORES FOR THESE MATERIALS

Factor Found in Reading Material	Coefficient of Correlation between the Factor and Comprehension Scores
Number of different technical words in the selection..	-.462
Number of hard non-technical words in the selection not known by 90 per cent of pupils in Grade VI as shown in the Dale list.....	-.380
Number of technical words in the selection known to less than 75 per cent of pupils in Grade VI as shown in the Dale list.....	-.377
Number of different hard non-technical words in the selection.....	-.374
Percentage of monosyllabic words in the selection...	.367
Percentage of easy words in the selection.....	.352
Number of prepositional phrases in the selection....	-.345
Number of words in the selection beginning with <i>i</i> ...	-.319
Percentage of hard non-technical words in the selec- tion not known by 75 per cent of pupils in Grade VI as shown in the Dale list.....	-.309
Percentage of technical words in the selection.....	-.302
Average number of words in each sentence of the selec- tion.....	-.293
Number of second person pronouns in the selection..	.251
Percentage of bisyllabic words in the selection.....	-.227
Number of words in the selection beginning with <i>w</i>...	.226
Number of indeterminate clauses in the selection....	.226
Average difficulty score for the technical words in the selection as computed from the Dale list.....	.225
Number of words in the selection.....	-.195
Percentage of hard non-technical words in the selec- tion.....	-.193
Number of words in the selection beginning with <i>e</i> ...	-.164
Percentage of compound-complex sentences in the selection.....	-.149
Percentage of simple sentences in the selection.....	.146
Number of easy words in the selection.....	-.114
Number of sentences in the selection.....	.112
Number of first person pronouns in the selection....	-.091
Number of words in the selection beginning with <i>b</i> ...	-.076
Number of words in the selection beginning with <i>k</i> ...	-.075
Number of third person pronouns in the selection...	-.069
Percentage of complex sentences in the selection....	-.028
Percentage of compound sentences in the selection...	-.024

do not greatly affect the difficulty of reading materials. Of the twenty-five factors shown in the table, ten are correlated with difficulty of comprehension to the degree represented by coefficients of 0.30 or above. All of these ten are easily computed for a given selection by any layman with the aid of the Dale vocabulary lists.

If all these ten factors are tabulated and combined to make the best prediction of difficulty possible by their use, the coefficient of correlation between the resulting prediction and the group scores for comprehension is 0.562. The meaning of this correlation may better be shown by illustration. There were twenty-two (30 per cent) of the seventy-four selections which were so well comprehended by the group of persons tested that they were understood by 60 per cent or more of the group. By combining these ten factors and choosing the twenty-two selections which would rank least difficult with reference to these factors, one would find that he had selected sixteen of the twenty-two which were actually easiest to comprehend as shown by later test. Now since all of these selections were chosen by the investigators because they were thought to be easy enough to be read by adults of limited education, it is probable that if one were dependent upon his offhand judgment in attempting to select the 30 per cent which are easiest to comprehend, he would be likely to get only seven right out of twenty-two. Using these ten factors, therefore, materially improves the layman's ability to choose selections which will be easiest for adults of limited education to comprehend.

For most practical purposes ten factors are too many to use in rating the difficulty of a selection. Since many of these factors are closely related to each other, as shown by their inter-correlations, it is apparent that the tabulation of these factors simply gives the same measure over again. The most simple method for predicting the difficulty of these selections is to count the *number of different technical words in the selection*, the *number of different hard non-technical words*, and the *number of indeterminate clauses*. The three factors when combined give a coefficient of correlation of 0.511 with the actual difficulty of

comprehension as shown by the tests. These three factors are about as good for purposes of prediction as are the ten factors. For most purposes librarians and others interested in selecting reading materials of given difficulty will find these three counts most valuable. Their use makes possible the prediction of the difficulty of selections comparable to those used in this study, estimates which will indicate the proportion of the group who can comprehend the selections. In more than 85 per cent of the cases such an estimate will be in error by less than 20 per cent.

If one is merely trying to judge the relative difficulty of selections, it is sufficient to make a count of these three factors and to select as least difficult those with the fewest different technical words, with the fewest different hard non-technical words, and with the most indeterminate clauses. On the other hand, if one wishes to predict the difficulty of reading materials in terms of the proportion of a group made up of persons of third- to fifth-grade reading ability who are likely to comprehend the materials, the following regression equation may be used:

$$x_1 = -9.4x_2 - .4x_3 + 2.2x_4 + 114.4 \pm 9.0.$$

In this equation x_1 stands for the percentage of a group of adults with third- to fifth-grade reading ability who, when tested on the reading material, will comprehend it; x_2 equals the number of different technical words found in a sample of the size of the selections used in this study, viz., about four hundred words in length; x_3 equals the number of different hard, non-technical words found in a sample of the size of the selections used in this study; x_4 equals the number of indeterminate clauses found in a sample of the size of the selections used in this study. The percentage of the group who will probably comprehend the material when predicted in this fashion has a probable error of 9.0, which means that probably one-half of all predictions thus made would differ from the actual results obtained by testing by not more than 9 per cent.

The use of this regression equation may easily be shown by illustration. Suppose one wished to select some reading mate-

rials which are easy enough so that they would be comprehended by at least 80 per cent of adults who have from third- to fifth-grade reading ability. Samples of these selections of similar size to those used in this study could be examined and the number of different technical words, the number of different hard, non-technical words, and the number of indeterminate clauses counted. These counts could then be multiplied by -9.4 , -0.4 , $+2.2$, respectively. The resulting products could then be added to 114.4. If all the selections were chosen in which the resulting sums were 80 or higher, we should have those in which the predicted difficulty of comprehension would be such that the selections would be understood by 80 per cent or more of the adults who have third- to fifth-grade reading ability. For these selections we should probably find half of them within 9 per cent of the difficulty predicted. Four-fifths of our selections would probably be found by tests to be within 18 per cent of the difficulty predicted. Hence this regression equation does give a reasonably accurate prediction of the difficulty of reading materials similar to those used in this study.

It should be pointed out that the samples tabulated should be of similar size to the selections used in this study. For long articles several such samples should be examined and the average used in the regression equation.

PROBLEMS REQUIRING FURTHER INVESTIGATION

As a source from which satisfactory methods of providing reading materials for adults of limited education may be obtained, the study which has been described requires additional supplementary investigations. A technique for attacking the problem has been developed, but this study has been limited to an analysis of reading materials dealing with health problems, and the difficulty of these materials has been measured only in terms of the comprehension of these materials by a group of colored adults in the city of Columbus. The investigation should be extended by analyzing in similar fashion reading materials dealing with several other topics of high interest to adult groups. By determining whether the factors found to be significant in

this study are also useful in estimating the difficulty of reading materials dealing with other topics the value of the present investigation would be greatly enhanced. Furthermore, the application of this technique to other typical groups of adults who have limited skill in reading would give evidence as to the usefulness of this method of determining reading difficulty for adults of limited education generally.

✓ Another logical extension of this study would involve experimentation in the writing of materials appropriate for adults who have limited skill in reading. Several typical groups should be chosen, and the non-fiction topics in which they were greatly interested could then be determined. It would be possible, by means of the technique developed in this study, to select reading materials on these topics which would be expected to be easily comprehended by these adult groups. These materials could then be distributed, and the degree to which they were understood by the individuals in the group could be determined by tests and by interviews. Additional materials dealing with these topics could then be prepared, written in such a way that the factors discovered in this study to have close relationship to difficulty would be present in the amount which would make for ease in comprehension. These new materials could then be distributed to the groups and the degree to which they were comprehended determined again by tests and interviews. Such an investigation would not only throw light upon the adequacy of the technique as a means of selecting appropriate materials for adults of limited reading ability, but it would also develop a method by which satisfactory materials could be prepared for use by these groups.

If these additional studies demonstrated that certain definite factors were in general closely related to the difficulty of the reading materials, it would be possible to experiment with a central agency, such as the American Library Association, which would be responsible for preparing lists of reading materials appropriate for adults of limited education. It would be much more economical for a central agency to estimate the difficulty of reading materials dealing with topics of interest to

adult groups than to have each branch library in the country make its own estimate of difficulty. The method of having a central agency prepare a list of appropriate materials could be tried out for a brief period, and evidence could be collected from individual libraries regarding the usefulness of these lists. Such a study might require several field-workers who would spend some time in the branch libraries interviewing patrons to discover the degree to which the materials suggested in the reading lists were appropriate for the adults of limited reading ability representing the clientèle of these libraries. The usefulness of these lists could also be checked by other adult-education agencies. Such extensions of this type of investigation would greatly enhance the value of the study.

EDGAR DALE
RALPH W. TYLER

BUREAU OF EDUCATIONAL RESEARCH
OHIO STATE UNIVERSITY

EXHIBIT A

SAMPLES OF MATERIAL TAKEN FROM TEST 1

BUREAU OF EDUCATIONAL RESEARCH
OHIO STATE UNIVERSITY

EDGAR DALE AND RALPH TYLER, *Investigators*

ADULT READING STUDY

PROJECT NO. 301

1. Write your name here

First name	Last name
------------	-----------
2. Put a circle around the age nearest yours:

15	20	25	30	35	40	45	Over 50
----	----	----	----	----	----	----	---------
3. Put a circle around the last grade in which you went to day school:

1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	----	----	----
4. Put a circle around the length of time you went to night school:

Months						Years			
0	3	6	9	12	18	1	2	3	4
5. Put a circle around the number of minutes or hours you read every day:

Minutes					Hours		
0	15	30	45	60	1½	2	3 or more

On the following pages you will see paragraphs from health articles which have been in newspapers. Following these paragraphs are five sentences about the reading materials in the paragraphs.

Read these paragraphs carefully. Then read the sentences which follow. Put a CHECK MARK (✓) after the sentence which best tells what the article has said. One of the sentences is all wrong, or tells something which was not in the paragraph. MARK IT WITH A ZERO (0). Do not mark the other three sentences.

Now, remember to put a CHECK (✓) after the sentence which best tells what was in the paragraph, a ZERO (0) after the sentence which is all wrong, and do not mark the other three sentences. Here is an example:

Children should not eat with adults. They should eat either before or after their elders. This plan permits the parents to eat undisturbed. It does away with the temptation of giving "tastes" of this and that to the youngsters.

Summary of Paragraph

1. Young children should not eat with their parents.
2. Parents should eat undisturbed.
3. Children should always eat earlier than their parents.
4. When children eat with their parents they want to eat everything that their parents eat.
5. Parents should allow their children to taste all foods.

TIME

ARTICLE C-6

Sinus disease is one of the most prevalent and common of body disorders. Though no actual figures have been compiled, so far as I know, its prevalence at times is appalling.

At least one person in every family seems to be the victim of this complaint. What can the reason be and how can we prevent this annoyance?

Sinus disease is usually the result of neglected head colds. It often follows sore throat, ear disease, grippe, bronchitis, pneumonia, or any infection of the upper air passages.³

Summary of Paragraphs

1. No actual figures have been compiled on sinus ills.
2. Sinus trouble is very common and is usually caused by neglected head colds.
3. Sinus trouble is the same as sore throat, ear disease, and grippe.
4. What is the reason for the prevalence of sinus trouble?
5. Sinus follows infection of the air passages.

TIME.....

ARTICLE B-7

A medical colleague offers this interesting contribution:

In a country practice of thirty years I have had my share of diabetic pa-

³ Royal S. Copeland, "Keeping well" (King Feature Syndicate).

tients, and for years I have noticed that the use of tobacco is rare among them. In fact, I can recall only one case, that of a doctor who died in coma; he was a voracious eater and a heavy user of tobacco.

For about ten years I have been advising my diabetic patients to smoke—that is, the men, but I suppose I might include the women as well now. I believe I have observed consistent benefit from it.

I do not know whether tobacco has any definite therapeutic effect on the pancreas or the secretion of insulin. The only theory I have is that tobacco diminishes appetite to some extent and in that way tends to prevent or to moderate the disease.

Few heavy smokers or chewers of tobacco are heavy eaters.

In my experience, overeating is the chief cause of diabetes, and I believe that is why but few users of the weed have it.

Non-users are constantly eating something—candy, fruit, etc. Not because they're really hungry or it is regular mealtime, but just for something to do or just to satisfy a vague craving.⁴

Summary of Paragraphs

1. Diabetes is probably caused by the use of tobacco.
2. The heavy smoker is not a heavy eater.
3. The diabetic person smokes and therefore does not eat so much candy.
4. The doctor has had his share of diabetic patients.
5. This doctor believes that the use of tobacco helps diabetic patients because it causes them to eat less.

TIME

ARTICLE E-2

The field laborer in hot countries, in the very countries from which these people come, has taught the world just the proper garment to wear for hot-weather comfort. It is of cotton, is light in weight, open in weave, and white in color. It is made into two garments—a shirt (with the tail worn out, making a blouse) and the trousers loose at the bottom and not very tight at the middle. However, Mexican and other Spanish-American women are not permitted by custom to follow this example set by their fellow-countrymen.⁵

Summary of Paragraph

1. Custom does not permit women to wear coats and trousers.
2. The men field laborers in hot countries cannot wear white cotton because it is against their customs.
3. The shirt should be worn outside the blouse.
4. The best hot-weather clothing is light-weight, open-weave cotton, made into a trousers and shirt that fit loosely.
5. We should follow an example of field laborers.

⁴ William Brady, "Personal health service" (National Newspaper Syndicate).

⁵ Dr. W. A. Evans, "How to keep well," *Chicago Tribune*.

EXHIBIT B

SAMPLES OF MATERIAL TAKEN FROM TEST 2

TIME

Milk is so nearly a perfect food that people who are ill can live on it for many weeks. But it is not a complete food. One reason is that it lacks iron, which we need for the blood. If we do not have iron we begin to grow pale and ill. Fortunately, fruits and leafy vegetables have a fairly good supply of iron. Newborn babies thrive on milk alone for a long time because they have enough iron in their bodies at birth to last for many weeks. After that time they must get iron in some way in order to be healthy.⁶

Paragraph Summary

1. Fruits and leafy vegetables give you iron.
2. Milk is a perfect food.
3. If milk had iron, it would be a complete food.
4. Newborn babies thrive on milk alone.
5. The blood needs iron.

TIME

When you burn yourself you need not bother to wash the burn with water, for the heat has killed the germs. The first thing to do is to keep the burn covered from the air. To do this, cover it with a paste made of baking-soda mixed with water. Lard or vaseline is good. Keep on the grease or baking-soda until the pain is gone.⁷

Paragraph Summary

1. Smear grease on a burn.
2. Wash a burn carefully so that there are no disease germs left.
3. Grease or baking-soda paste is good for a burn because it keeps out the air.
4. Mix the baking-soda with water before you put it on the burn.
5. Lard or vaseline is very good for a burn.

TIME

It has long been known that certain diseased conditions in man are due to the lack of particular foods. Thus, sailors whose vessels were kept at sea by storms and contrary winds until their supply of fruits and fresh vegetables gave out, often came down with the scurvy. They became weak, sores broke out on their bodies, and many died of the disease. If, however, they could

⁶ Andress and Evans, *Health and success* (Ginn & Co.), p. 185.

⁷ *Ibid.*

put into some island where they could find fruits, like lemons or oranges, or fresh green stuff to eat, their scurvy would disappear. This was particularly true in the days of the sailing vessels when ships were often at sea for months between ports.⁸

Paragraph Summary

1. Scurvy may sometimes be gotten by eating fruits and vegetables that are a bit too fresh.
2. Sailing vessels were often at sea for months between ports.
3. Lemons and oranges grew on some of the islands visited by sailors.
4. Sailors who ate fruit and fresh vegetables did not get scurvy.
5. Sometimes the supply of fresh fruits and vegetables gave out.

TIME

Anna had a raincoat and rubbers. She wore them to the picture show and did not take them off. She was so warm after the show that she took off her raincoat and sat on the porch for a while. She caught cold and had to stay in bed for two days.⁹

Paragraph Summary

1. Never wear a raincoat and rubbers when you are on the way to a show.
2. Anna caught a bad cold.
3. Anna had to stay in bed for two days.
4. Anna sat on the porch after the show.
5. Anna caught a cold because she didn't take her raincoat and rubbers off in the show.

TIME

In the army where men do so much marching, the feet of the men must be kept free of sores. The shoes are not tight, and the men are told to cut the toenails straight across, instead of rounding them. If the nails are cut straight across, or almost straight, and if the shoe is not too small, you will not be bothered by an "in-growing" toenail.¹⁰

Paragraph Summary

1. Cut the nails straight across.
2. Men must do much marching in the army.
3. The feet of soldiers must be kept from being sore.

⁸ Elliot R. Downing, *Science in the service of health* (Longmans), p. 282.

⁹ Williams and Danadill, *Health and happiness* (Sanborn), p. 101.

¹⁰ Burkhard, Chambers, and Maroney, *Health habits* (Lyons & Carnahan), I, 35.

4. In-growing toenails are caused by tight shoes and rounding the toenails when they are cut.
5. Buy shoes that fit.

TIME

Cotton is probably the best material for underclothing, as it is comfortable to the skin. It is cool and it easily lets the heat and air out from the body. It does not need to be washed as often as wool. It washes easily, that is, it does not shrink much. Cotton underclothing can be worn not only in summertime, but unless one has a weakness of some kind, it can be worn without danger in the winter as well. It has an extra advantage in that it is less expensive than other kinds of underclothing.¹¹

Paragraph Summary

1. Some people wear cotton underclothing in winter.
2. One bad thing about cotton is that you have to wash it more often than wool.
3. Cotton is less expensive than other kinds of underclothing.
4. Cotton is cool.
5. Cotton is probably the best material for underclothing.

EXHIBIT C

SAMPLES OF MATERIAL TAKEN FROM TEST 3

TIME

Tony went to the drug store for some iodine. The doctor had told him to put some on his finger, which he had cut with an old knife. Iodine is very good for a new cut. On the outside of the bottle the druggist had put a label to show that the iodine was poison. Tony forgot to put the bottle away, and left it on the window sill. Soon his little baby brother, who was just beginning to walk, came along and started to drink the iodine. Just then the mother saw the baby, and screamed in time. The baby had swallowed only a little of the iodine. Tony heard his mother scream. He jumped out of bed, and, half-dressed and barefooted, he ran to the drug store and telephoned for an ambulance.

The druggist, who had heard Tony, told him to run home and give the baby some flour paste and then some mustard water. Tony ran back as fast as he could go and told his mother what the druggist had said. She snatched a spoon from the table and stirred some flour in a half-cup of water. Then as she held the baby, Tony poured this into the baby's mouth. In another cup

¹¹ *Ibid.*, p. 99.

she stirred a half-spoonful of mustard into some water, and poured several spoonfuls of this mustard water into the baby's mouth. This made the baby vomit. Then the ambulance arrived, and the baby and his mother were soon in the hospital. When the good doctor there took charge of the baby, he said that Tony and the mother had really saved the child's life.¹²

Paragraph Summary

1. If a person has swallowed poison give him some flour paste and mustard water. This will make him throw up.
2. The baby and his mother went to the hospital in an ambulance.
3. Tony went to the drug store for some iodine.
4. You put the flour in a half-cup of water.
5. Never put iodine on a new cut. It is poison.

TIME

Is freshly baked bread more harmful than bread a day or two old?

When you eat fresh bread it very quickly forms into a ball which is then swallowed. Bread a day or two old doesn't form a ball so easily and you can chew it longer. The digestive juices can work on a lot of little pieces better than they can on one big ball. That's why fresh bread isn't so good for you as bread that is a day or two old.¹³

Paragraph Summary

1. Fresh bread forms a ball in your mouth.
2. You chew old bread longer.
3. Bread which is a day or two old is easier to digest than very fresh bread because you chew it longer.
4. Digestive juices can work better on bread a day or two old.
5. Bread should be baked hard on top.

TIME

Is graham bread more healthful than white bread?

If you were to eat only white or only graham bread, then the graham bread is better. But if you eat the right kinds and amounts of other foods with your white bread there is no difference. Graham bread, however, has more bran, salts, and vitamin content than white bread.¹⁴

Paragraph Summary

1. Graham bread has bran in it.
2. If you eat the right kinds and amounts of other foods, white bread is as healthful as graham bread.

¹² Myers, *The Language of America*, II, 27.

¹³ Adapted from *Hygeia—the health magazine*, March, 1931, p. 288.

¹⁴ *Ibid.*

3. Graham bread has salts in it.
4. Graham bread is better because it is baked longer.
5. There are vitamins in graham bread.

TIME

The doctor and I watched the long row of men waiting in the bread line for their cup of coffee and doughnuts. The doctor shook his head and said, "Why are the people in charge of this bread line so foolish as to feed these starving men coffee and doughnuts. Those men won't get enough vitamins and maybe they'll start getting scurvy and pellagra. What those poor fellows need is thick vegetable soup and milk. That would be much better than coffee or doughnuts."¹⁵

Paragraph Summary

1. The city ought to feed coffee and doughnuts to all people out of work.
2. Coffee and doughnuts are not the right kind of foods to keep a person healthy.
3. The men need thick soup.
4. These men might start getting scurvy and pellagra.
5. There were many men waiting in the bread line for their food.

TIME

A man went into a drug store and asked for something to cure a headache. The druggist held a bottle of ammonia under the man's nose. The ammonia was so strong that it nearly knocked the man over. It made the tears come in his own eyes. When he began to get over the shock, he got very mad at the druggist. He said, "I'll punch your nose." The druggist said, "What's the matter with you? Didn't I help your headache?" Then the man said, "Help my headache? Why, I didn't have any headache. It's my wife at home that's got the headache."

Paragraph Summary

1. This is a joke. The druggist thought the man had a headache and it was the man's wife that had it.
2. Ammonia was held under the man's nose.
3. Ammonia makes tears come in your eyes.
4. The man was going to punch the druggist's nose.
5. Always bring your wife with you when you get medicine. You will not get into trouble if you do.

¹⁵ Adapted from *ibid.*

THE USE OF THE SCHOOL LIBRARY BY TEACHERS AND PUPILS IN JUNIOR AND SENIOR HIGH SCHOOLS

THE purpose of the present investigation was to assist in the improvement of library administration in public secondary schools by providing objective information concerning the nature and extent of library usage by pupils and teachers in certain representative junior and senior high schools in several widely separated localities of the United States. To this end, a canvass was made of expert judgments regarding the purpose of a school library and the place it should occupy in an educational institution, with special reference to its use as a vital part of the instructional organization of the school. Secondly, a detailed analysis was made of library usage by 17,616 pupils enrolled in twenty-four junior and senior high schools over a period of one semester, including a study of the reading habits and preferences of these pupils. Finally, an evaluation was made of the methods of library administration producing these results in terms of the aims of the school library, as revealed by the preliminary canvass of expert judgment. Recommendations for a modified type of library administration are made, based on the findings of the study.

In selecting schools for the survey, an attempt was made to choose those which best represent the American secondary school in general. A rough geographic distribution was provided. The group included an equal number of junior and senior high schools, with the total pupil population of each type nearly equal. For the most part, the schools selected were ones with which the writer had had personal contact, keeping in mind the geographic distribution, adequate range of enrolment, and the proper balance of junior and senior high schools. The enrolments of the junior high schools ranged from 112 to 1,475; the high schools, from 75 to 3,563.

A consideration of the data gathered leads to an evaluation of

library usage in terms of the following functions of the library: (1) acquisition and organization of library materials, (2) instruction in the use of library materials, (3) provision of reference materials, (4) provision of free reading opportunities, (5) guidance in pupil reading, (6) provision for social activities, and (7) co-operation with the public library.

The foregoing list of aims is comprehensive in that it incorporates within it all suggested practical library services. It is representative in that all authorities emphasize, more or less, each function in the list. They are the functions of the library; and they are, in general, not only desirable but also attainable.

General evaluation of library usage in terms of aims.—A canvass of expert opinion regarding the functions of the school library indicates that the library is an agency of fundamental importance in the organization and administration of public education. The growing importance of reference reading and reading for pleasure has convinced school authorities that the library is a dynamic means of instruction. Notwithstanding the claims very appropriately made for the library, its facilities are not adequately used. Fundamental changes in subject-matter content and in teaching methods have demanded service which the library has been often unable to render. The position taken in this study, based on the findings of the present investigation and supported by outstanding educational authorities, is that the library should be the central feature of the school and the generous source of reference reading and pleasurable activity. As such, it should effectively perform each of several specific functions, the presentation of which follows.

Acquisition and organization of library materials.—The data embodied in the present survey indicate that the libraries only partially perform this function.

No provision for an annual library budget was made in 5 per cent of the schools. Less than twenty-five cents per pupil per year was spent in 18.5 per cent of the schools. Thirty per cent of the cities with a population of 30,000 or more maintained school libraries inadequate to meet educational needs.

In regard to the number of books on the shelves, all schools

had more than the minimum set by the New York City Board of Education. However, the survey showed that voluntary recreational reading of newspapers and magazines was the most popular type of library activity, as measured by frequency of library attendance and length of visits. Six per cent of the schools took no magazines, and 8 per cent took no newspapers.

No school made any use of county or state traveling libraries, although such facilities existed for every school surveyed.

In the matter of organizing library materials so as better to accommodate pupils, it would seem that library service might be improved. In approximately half of the schools, pupils were admitted freely to the library. In the others, routine requirements, sometimes highly elaborate, were set up which could act only as a hindrance to library usage. Forty-two per cent of the schools denied the pupil freedom to the book stacks. In 16 per cent of the schools, pupils had to request in written form the specific book desired. Classroom browsing tables and the decentralization of the library were not common practice. Only 8 per cent of the school libraries consistently distributed reading materials to the classroom.

Many factors are directly or indirectly responsible for the limited amount of reading done through the school library and the noticeable decrease of such reading in the upper grade levels. Library equipment and organization is undoubtedly one of these factors. Approximately half of the junior and senior high-school pupils read no school library books throughout the semester. Slightly over half of the pupils used the library for no purpose whatsoever during the two-week period. The number of books read per pupil showed a steady decrease throughout the upper grade levels, the figures for the junior high school being 1.52 books per pupil, and for the senior high school 0.93 books per pupil. High-school library attendance was barely more than half of that for the junior high schools, and the frequency of attendance decreased in the upper grades of both school levels.

Instruction in the use of library materials.—This function is often partially performed by some department in the school,

particularly the English or social studies departments. As a library function, however, it is not adequately carried out.

In the schools studied, 14.8 per cent of the pupils pass through school with no instruction in book or library usage other than that afforded them incidentally by some conscientious teacher. Systematic instruction for all pupils was given in 25.9 per cent of the schools. In all other schools, library instruction was limited to one or, at most, to two grades. Practically all of such instruction was given in the junior high schools. The high schools especially seem to be in serious need of some form of library instruction.

Provision of reference materials.—On the whole, the library effectively performs this function. However, the degree of usage for reference purposes hardly justifies the emphasis given this function by school authorities.

The number of library visits for reference reading was about half of that for recreational reading in both junior and senior high schools. The duration of time per library visit was longer for recreational reading than that for reference reading—21.6 minutes and 20.3 minutes, respectively.

The high-school library appeared more adequately to perform the function of providing reference materials than did the junior high school library. This was true, not because of an increased amount of reference reading, but because of a decided decrease in recreational reading in the high schools. These libraries provided ample reference materials and encouraged their use. The weakness in performing this function appeared in the unbalanced departmental use of reference materials. Practically all of such use was concentrated in three departments—the social studies, English, and science.

Provision of free reading opportunities.—A review of the data shows that there is yet much to be accomplished in this phase of library usage.

In the junior high schools, 46.6 per cent of the pupils read no library books whatsoever. The percentage doing no reading increased in the high schools to 53.7 per cent. From grade to grade throughout both school levels, the proportions of pupils

doing no reading increased rather steadily. It can hardly be argued from these data that the library creates a genuine love of reading. It is significant that newspaper and magazine reading were the most popular forms of recreational reading, although the libraries were definitely better stocked with books than with magazines and newspapers. Sports and comics were the most popular.

Guidance in pupil reading.—Recalling data which cannot be presented in an article of this brevity, it is clearly shown that the library fails to accomplish much that it should in this respect. The fact that a third of the schools surveyed provided only part-time library service precludes the possibility of adequate guidance.

One of the aims of the free-reading program is to guide individual pupils more effectively in their reading. With over half of the schools having no such program, it is probable that this function receives too little attention. Over half of the pupils read no books from their library during the period of the investigation. Even though the librarian may attempt to discover and guide pupils' reading interests, she is able to reach relatively few.

Provision for social activities.—An accurate study of the efficiency with which the library performs this function is extremely difficult. For the most part, an examination of library facilities upon which this function must rest is all that can be done. Based upon these data, it would seem that the junior high school library more fully performs this service than does the library in the high school.

Group library activities were more frequent in the junior high schools. Library clubs were more prevalent in the junior high schools. The junior high school library was better equipped with projection lanterns, display cases, wall panels, fireplaces, lounging chairs, work rooms, committee rooms, bulletin boards, and other features likely to provide informal home-like surroundings.

Co-operation with the public library.—It can scarcely be claimed that these particular schools consciously achieved this

aim. Seventeen schools made no use of the public library. In no case did groups of pupils visit the public library under teacher direction. In no case did the public librarian visit the school for book talks or other guidance in post-school reading. There can be little doubt that pupils did rely upon the public library considerably; but the important fact is that little conscious effort was put forward to stimulate an interest in the public library.

Conclusion.—This investigation was an attempt to evaluate usage in terms of the aims formulated for the school library. The criteria, which are the functions themselves, represent an ideal state of affairs. Necessarily then, the libraries studied can only partially perform the services expected. From a relational point of view, however, the school librarian or school principal can determine weaknesses in organization, administration, and service which prevent the library from giving maximum service.

Stated in the light of this evaluation, the following suggestions and recommendations for improved library usage are made:

1. In the larger schools, full-time professionally trained librarians should be in charge of the library. More than anything else, efficient library personnel will encourage reading and stimulate library utilization.
2. As far as library equipment will permit, library materials should be distributed throughout classrooms.
3. The library should be open for a short time before and after school hours for reference work and the issuance of books of a recreational nature.
4. When other library facilities are lacking and where community interest demands it, the library should remain open in the evening.
5. Newspaper and magazine reading constitute a large portion of library activity and should be provided in every school.
6. The library should not be used for recitational purposes. Expensive library equipment should be reserved for its proper use.
7. A free-reading program should be initiated.
8. Pupil interests should be considered when library materials are being purchased. It is advisable to allow pupils to rec-

commend books from time to time and, as far as practicable, to be guided by their interests in making the ultimate choice.

9. In those states where traveling libraries exist, their facilities should be more fully utilized.

10. Pupils should be allowed freedom to the book stacks for browsing purposes where library equipment, arrangement, and personnel will permit.

11. Requirements for admission to the library should be simplified as far as possible. The resulting freedom would act as an added inducement for library utilization.

12. Hearty co-operation should exist between the teachers and the librarian. The librarian should keep the teachers informed as to available materials; and the teachers, in turn, should make their library assignments definite and advise the librarian as to materials needed.

13. Instruction in library usage should be given to all pupils.

14. All departments should be encouraged to utilize the library. No school department exists but what could profitably make use of library facilities.

15. More definite co-operation should exist between the school and public libraries. Not only will it amplify school library materials, but it will serve as a carry-over for pupils, orienting them in regard to public-library service after they have left school.

16. Library clubs should be provided in the extra-curricular program of the school. Any worth-while movement which lends publicity to the library should be encouraged. A portion of the school newspaper, where such exists, should be devoted to library news, book reviews, etc.

17. The library might well be made the center of the social life of the school. It should be provided with display cases, exhibition panels, etc., in order that the pupil's work might be appraised by his classmates. Social library activity should be encouraged. The library, like all other school agencies, has for its purpose the socializing and civilizing of the pupil.

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DUPLICATE COPIES OF COLLATERAL REFERENCES FOR COLLEGE LIBRARIES

I

THE problem of duplication for college libraries is a vexing one. It has indeed become acute within the last few years due to the increased enrolments, the revised curriculums, and the new methods of teaching. These changes have demanded the use of many books and much duplication. Both librarians and instructors have been so involved with the making of immediate adjustments that there has been little time for the study of the problem of duplication—a problem which required tedious investigation.

According to the American Library Association *Survey*,¹ the factors which have most often influenced the number of copies purchased have been the number of students in the class and the cost of the book. No account has been taken generally of other factors. Two studies were published in the *Library journal* in 1915² and in 1917³ which included some original research on the problem of duplication. Both writers kept records of the circulation of certain reserve books over a period of several weeks. Both agreed upon five factors which influence the number of copies needed: the number of students, the length of the assignment, the time that is allowed for the reading, the character of the reading matter, and whether or not the assignment is required or suggested.

STATEMENT OF THE PROBLEM

Because of the widespread need this investigation was begun. The problem of the study has been to develop a technique

¹ American Library Association, *A Survey of libraries in the United States* (Chicago, 1926), I, 237-40.

² F. C. Hicks, "Library problems resulting from recent developments in American universities," *Library journal*, XL (May, 1915), 307-12.

³ T. P. Ayer, "Duplication of titles for required undergraduate reading," *ibid.*, XLII (May, 1917), 356-58.

whereby the amount of duplication of collateral references necessary to supply a given class of undergraduate students may be computed. The assumption upon which the study rests is that it is a function of a college to provide a sufficient number of copies of collateral references for its students. Collateral reading or "outside reading," as it is sometimes called, may be defined according to Mary E. Cobb, as

any reading related to college courses and obtained from any sources outside of the one or two basic texts which the students may be required to purchase for each course, such reading being either suggested or required, and either from definitely assigned references or for problem work in which the student selects his own material.⁴

By a sufficient number of copies of collateral references is meant, of course, not one for each student but such a number as the University of Pennsylvania describes in its policy:

We try to have as many copies of a special reference book as may be needed to enable every student to use it by taking a reasonable amount of trouble to do so. This does not mean that he can be sure that a copy will be available whenever he asks for it.⁵

This study is limited to the consideration of collateral reference books which are placed behind reserve desks and does not include those on open shelves. It is also restricted to the treatment of readings with more or less definite assignments. The technique cannot be used for topic assignments with no defined limits. At least an approximate figure must be named for use.

A CONSPECTUS OF THE STUDY

In the beginning of the study an analysis was made of the elements believed to influence the number of copies required. The elements which were found to be significant were the number of students in the class, the number of pages to be read, the time allowed for the reading, the number of loans that one book in demand will make in the assigned period, the length of the average daytime loan, the number of pages read per hour by the

⁴ "Collateral reference function of the Teachers College Library as affected by the holdings of other local libraries" (Master's thesis, Graduate Library School, University of Chicago, 1930), p. 99.

⁵ American Library Association, *op. cit.*, II, 185.

average student, and the number of titles on the collateral reading list.

Records kept by the writer over a period of many weeks from two reserve desks revealed that there are relationships between these factors which remain constant. The number of students multiplied by the number of pages each must read will give the total number of pages to be read by all the students. The number of pages read per hour by the typical student multiplied by the length of the average loan in terms of an hour will give the number of pages read by the typical student during one average loan period. If the first product (the total number of pages) be divided by the second product (the number of pages read by the typical student in one loan period), the number of loans needed for all the students will be ascertained. Then if this total number of loans be divided by the number of loans one book may be expected to make in the given period, the quotient will give the number of books needed. Thus by an objective method, the number of duplicate copies necessary for a given class under given conditions may be determined.

II

THE PROCEDURE

When the problem had been defined, all the factors which were first believed to be influential in affecting the number of copies needed were listed: (1) the number of students in the given class, (2) the number of sections of the class,⁶ (3) the number of recitations per week, (4) the number of pages to be read, (5) the number of pages that an average college student will read per hour, (6) the number of hours the library is open per day, (7) the length of time allowed for the reading, (8) information as to whether the readings are required or suggested, (9) the number of titles on the collateral reading lists.

In planning the collection of the necessary information it was decided to make use of data already collected by Professor Floyd W. Reeves and Professor William M. Randall in a recent

⁶ Items 2, 3, and 8 were later found to be unimportant factors.

survey of colleges. A group of seven colleges was chosen as a sample group. Facts concerning items 1, 2, 3, and 6 in the preliminary list of data were already available in the offices of the above-mentioned men. Further information about assignments for collateral readings in selected courses were sought from these colleges. General introductory courses in biology, chemistry, economics, history, psychology, and sociology were chosen. Letters to the librarians brought answers from six of the colleges with detailed information regarding the assignments.

With facts obtained concerning thirty-six courses (six courses at six colleges), it was found that twenty-seven of them assigned collateral readings. Seventeen of the twenty-seven made assignments by definite pages or books, and eight by topics. There are two kinds of definite assignments: those with *specific* pages or books to be read; and those with *quantitative* assignments, as, for example, a certain number of pages or books to be chosen from a given bibliography. In the case of specific page or book assignments, it will be necessary to provide a sufficient number of duplicate copies of those particular books for the entire class. For instance, if the class must read Dodd's *Cotton kingdom*, pages 65-106, within a short time, it may be necessary to have six or eight copies. On the other hand, with quantitative assignments of so many pages to be chosen by the students from any books in the bibliography, it will not be necessary to provide each book in large-enough quantities for all the class. But a sufficient number of books, either separate titles or duplicate copies, should be provided.

Because of the indefinite character of topic assignments, it was decided not to attempt to solve the problem of the number of copies needed unless at least an estimation of the number of pages could be named.

The number of pages that an average student can read in an hour was believed to be a determining factor. From Mr. Ivan A. Booker, assistant director of research, National Education Association, it was found that his studies of the reading rates of college freshmen entering the University of Chicago in the fall term of 1930 and of 1931 revealed the mean rate of 3.68 words

per second for the first year and 3.83 words per second for the second year. His test given to the freshmen in Western Maryland College in the autumn of 1931 showed a similar rate. Mr. Booker said that he believed that 3.50-4.00 words per second is the average rate for college entrance classes generally.⁷ The selections used for these tests were non-fiction, and they were believed to be typical of textbook material in difficulty of style, vocabulary, and content.

Professor Howard Y. McClusky of the University of Michigan sent the writer several tables of the results of his experiments with college students' reading in the fields of fiction and ethics. The median scores are recorded for the slow readers, the normal readers, and the fast readers. The average for the normal reader in ethics or non-fiction from these four experiments was 3.51 words per second.⁸ This rate falls within the range given by Mr. Booker.

Since these investigations in the field of reading rate and comprehension of college students are in close agreement, it seemed safe to use the results of their findings in this study. The lowest rate, 3.51 words per second found by Mr. McClusky, has been adopted by the writer as a fair rate for the average student.

But the rate must be translated into pages to be useful in this case. Dorothy R. Swift, of the staff of the University of Chicago Press, gave the information that the average page of textbooks with 10-point type would in all probability contain 400-450 words. She believed also that textbooks with 9-point type might have 500-525 words to the page.⁹ For this study, 450 words will be used as an average for books with 10-point or 9-point type. The rate of 3.51 words per second multiplied by sixty seconds and sixty minutes and divided by 450 words to the average page will give 28.0 pages per hour. Twenty-eight pages per hour will be used henceforth in this study for the rate of the average college student.

In order to determine whether there were other factors which

⁷ M. M. Helm, "A Technique for the determination of the number of duplicate copies of collateral reference books needed in college libraries" (Master's thesis, Graduate Library School, University of Chicago, 1933), Letter F, p. 67.

⁸ *Ibid.*, p. 15.

⁹ *Ibid.*, Letter I, p. 73.

must be considered, visits of observation were made to the libraries of three neighboring colleges—Lake Forest College, Rosary College, and the undergraduate reserve-book room of the University of Chicago. From these visits the following conclusions were drawn:

1. It may take more than one loan for a student to do the assigned reading in a given book, especially if the library has a limit to the length of the daytime loan.
2. Not all the books, however, are kept the full length of the loan period. Many are turned in early.
3. A book rarely makes as many actual loans as it would seem possible for it to make. This is due to three facts: (a) there is not a constant demand for a book throughout the day, (b) students will not always be at hand waiting for books to be returned, and (c) there is inevitably some loss of time between loans for discharging, shelving, and occasional repairs.
4. Even books in demand are not always borrowed for overnight.

Since only a limited number of loans may be expected from a book in a day, such details as the number of sections of a class and the number of recitations per week were now deemed unimportant. Also because the force of "suggested readings" is indefinite, depending upon the emphasis of the instructor, it was decided for this study to provide them just as if they were required. Thus three items of the original list of data were now discarded.

REVISED LIST OF DATA

1. Standardized data
 - a) Number of pages read per hour by the average college student
2. Data peculiar to each institution
 - a) Length of an average daytime loan¹⁰
 - b) Number of loans one book may be expected to make in a given period¹⁰
This is of course affected by the library hours
3. Data that vary from one class to another within the same institution
 - a) Number of students in the class
 - b) Number of pages to be read
 - c) Length of time references are given in advance, as for the next recitation, for the week, the month, the semester
 - d) Number of titles on the collateral reading list. This information is important to determine whether the number of books needed represents duplicate copies or separate books with or without duplication

¹⁰ Further study may prove this to be an item of standardized data.

Two new items appeared in the revised list of data—the length of an average loan from the reserve desk and the average number of loans which one book may be expected to make in a day or in a week. It was now necessary to collect additional data.

The length of time that a reserve book may be used in the library by one person is limited to one or two hours in a number of colleges. Still other colleges place no limit on the time. But a book may also not be retained the full length of the loan period. So it became important at this point to ascertain for how long a book is generally borrowed. Statistics on the time books were actually kept from the undergraduate reading-room, University of Chicago, and were recorded for two days, May 25 and June 5, 1931. The reserve desk had a two-hour regulation. Call slips were stamped by the time-clock when the books were borrowed and stamped again when they were returned. The statistical mean of the total number of 338 loans was approximately sixty-six minutes.

These findings are consistent with the findings of Professor Eurich at the University of Minnesota. He found from the record of a week that the median loan is between sixty and seventy minutes.¹¹ The investigator also found from a record of one hundred loans kept at Simpson College during the summer of 1931 that the average loan there was fifty-six minutes. It is interesting to note that Simpson College has no time restriction on the loan of reserve books in the library. At Western Kentucky State Teachers College, where the loan was for one hour, statistics were kept for a week during the summer term of 1931. The mean was found to be thirty-seven minutes. It is not known whether or not this shorter average loan was due to an hourly restriction or to shorter assignments or to other causes.

Since, however, the loans at three of the four colleges are approximately an hour, one hour will be used as the length of an average loan in this study except for the Western Kentucky College.

¹¹ A. C. Eurich, "A Study of library problems with special reference to student use" (unpublished study, University of Minnesota, 1931).

From observation, it had become clear that the number of loans¹² actually made by a reserve book was generally less than the possible number. So it was decided to make a study of the actual circulation of books on reserve. Circulation figures were gathered from the undergraduate reserve-room, University of Chicago, for fifteen days—from May 22 to June 10, 1931. This period begins with Saturday of the eighth week of the Spring Quarter and extends through Wednesday of the eleventh week. According to Mr. Eurich's study of circulation in the reserve-room at Minnesota, these would be normal weeks,¹³ i.e., weeks with the circulation between the high and the low points. His graphs of the circulation for three quarters for three years show that the peak of circulation for the quarter is always reached during the first three weeks, after which it declines. Following the sixth week a gradual rise occurs, "although not to the point of the first few weeks, until the week before the close of the quarter when the curve drops very rapidly."¹⁴ These weeks at Chicago would seem, then, to represent typical weeks.

The total circulation for each book was found from the call slips. The books having the greatest number of loans per copy were selected for the study. These books the writer knew to be in such demand that frequently all requests for them could not be filled. The ten titles with the highest circulation included twenty-two different copies, and each copy had as many as seven and a half loans per week. Records for a shorter period than a week were not used as it is believed that a sporadic circulation might be higher than a book would be able to sustain. "Books in demand" will be understood to mean in this study those having a circulation of at least seven and a half loans per copy per week or one and a half loans per day.

Analyses of the circulation for the whole period (see Table I) and for two weeks taken separately show marked consistency. The average figures per day of 2.93 loans for the whole period of fifteen days, 2.9 for the first week of six days, and 2.7 for the

¹² For full discussion see Helm, *op. cit.*, pp. 26-42.

¹³ *Op. cit.*, p. 9.

¹⁴ *Loc. cit.*

TABLE I

CIRCULATION RECORD OF TWENTY-TWO BOOKS IN DEMAND* MAY 23-JUNE 10,
1931, UNDERGRADUATE RESERVE-BOOK ROOM, UNIVERSITY OF CHICAGO

Titles	Sat.,† May 23	Mon., May 25	Tues., May 26	Wed., May 27	Thurs., May 28
Barnes, <i>World politics</i>	0	4	4	4	2
Bassett, <i>Expansion and reform</i>	0	5	3	5	5
Beard, <i>Rise of American civilization</i> , Vol. II.....	1	7	7	9	11
Black, <i>Production economics</i>	—‡	—	—	—	—
Clapham, <i>Economic history of Great Britain</i>	—	—	—	—	—
Clark, <i>Social control of business</i>	—	—	—	—	3
Emerton, <i>Modern Europe</i>	0	7	7	9	9
Foster and Catchings, <i>Money</i>	0	4	6	8	8
Harper, <i>Civic training in Soviet Russia</i>	0	4	4	4	3
Sparks, <i>National development</i>	0	1	1	3	2
Total.....	1	32	32	42	43

* Books with an average circulation of as many as 7.5 loans per copy per week

† Saturday's circulation is light because books may be borrowed for the week-end as early as 5:00 P.M. on Friday.

‡ A dash means that the average circulation was less than 7.5 loans per week.

TABLE I—Continued

Titles	Fri., May 29	Sat., May 30	Mon., June 1	Tues., June 2	Wed., June 3	Thurs., June 4	Fri., June 5	Sat., June 6‡	Mon., June 8	Tues., June 9
Barnes, <i>World politics</i>	2	0	4	2	5	5	—	—	—	—
Bassett, <i>Expansion and re- form</i>	7	0	9	4	5	3	6	—	3	4
Beard, <i>Rise of American civilization</i> , Vol. II....	12	0	9	9	5	6	8	—	8	9
Black, <i>Production eco- nomics</i>	3	0	8	5	12	3	6	—	9	10
Clapham, <i>Economic his- tory of Great Britain</i> ...	—	—	—	—	—	4	5	—	4	10
Clark, <i>Social control of business</i>	2	1	2	0	7	8	10	—	7	13
Emerton, <i>Modern Europe</i> ...	10	0	11	9	10	11	—	—	—	—
Foster and Catchings, <i>Money</i>	7	0	4	6	3	6	7	—	—	—
Harper, <i>Civic training in Soviet Russia</i>	0	0	5	—	—	—	—	—	—	—
Sparks, <i>National develop- ment</i>	4	0	3	4	—	—	—	—	—	—
Total.....	47	1	55	39	47	46	42	—	31	46

‡ Circulation figures for Saturday, June 6, were accidentally destroyed.

TABLE I—Continued

Titles	Wed., June 10	Total No. of Loans	No. of Copies	No. of School Days	Average No. of Loans per Copy per Day	Average No. of Loans of All Copies per Day	Average No. of Loans per Week||
Barnes, <i>World politics</i> ...	—	32	1	9	3.56	.....	.....
Bassett, <i>Expansion and reform</i>	3	62	1	13	4.77	.....	.....
Beard, <i>Rise of American civilization</i> , Vol. II...	5	106	4	13	2.04	.....	.....
Black, <i>Production eco- nomics</i>	8	64	4	9	1.78	.....	.....
Clapham, <i>Economic his- tory of Great Britain</i> ..	8	31	3	5	2.07	.....	.....
Clark, <i>Social control of business</i>	10	63	2	10	3.15	.....	.....
Emerton, <i>Modern Europe</i>	—	83	3	9	3.07	.....	.....
Foster and Catchings, <i>Money</i>	—	59	2	10	2.95	.....	.....
Harper, <i>Civic training in Soviet Russia</i>	—	20	1	6	3.33	.....	.....
Sparks, <i>National develop- ment</i>	—	18	1	7	2.57	.....	.....
Total.....	34	538	22	91	29.29	2.93	14.65

|| Number found by multiplying daily average by 5 and not by 6 as loans for Saturday need not be expected.

second week of six days are smaller daily averages than one would expect; but they are actual loans, and one is often surprised at the difference between theoretical and actual facts.

Table II shows the averages which would appear to be reliable for a book in demand at the undergraduate reserve-book room, University of Chicago.

TABLE II

For a day (i.e., a school day).....	2.93, or approximately 3
For a week.....	14.65, or approximately 15
For Saturday.....	0.0
For overnight.....	0.5, or 1 every other night

That the circulation of these books in demand was negligible for Saturday is explained by the fact that books may be borrowed for the week-end as early as 5:00 P.M. on Friday. Examination of the circulation for Fridays showed that most of these books were actually borrowed on yellow slips for the week-end.

Figures of the circulation of reserve books were kept at Western Kentucky State Teachers College for a semester and a half. All the tall book cards for reserve books were kept from September, 1931, to April, 1932. Record sheets were made, as in the case of Chicago, for all those averaging as many as 1.5 loans per day for as long as a week. During the first semester a total of 1,203 loans for 43 books was recorded. The tall book cards of all reserve books were kept again during the second semester for nine weeks. Loans to the number of 1,199 for 54 books averaged as many as 1.5 loans per day.

The rates for the two semesters are remarkably consistent. The average number of loans per week are 18.90 and 18.42, respectively. The daily averages are 3.15 for the one term and 3.07 for the other term. The two Saturday averages are practically the same, 2.90 and 3.00, as are also the school-day averages, 3.20 and 3.08. Since the records for the first semester had not divided overnight and daytime loans, it is impossible to compare those two items.

What appear to be reliable average loans for a book in demand at Western are shown in Table III.

TABLE III

For a week	18.66, or approximately 19
For a day (school day or Saturday) ..	3.11, or approximately 3
For overnight loans on a school day...	0.28, or approximately 0.3
For daytime loans on a school day...	2.80

The following conclusions are drawn relative to loans:

1. A book in demand does not actually make as many loans as it would be expected to make.
2. The average number of loans per day is three, or approximately the same at both colleges.
3. The difference in the number of loans per week, fifteen at Chicago and nineteen at Western Kentucky, is no doubt chiefly explained by the different hours for week-end loans. The privilege of making week-end loans on Friday afternoon after 5:00 P.M. at Chicago reduces the total number of loans per week by one day's circulation. Reserve books do not go out for the week-end at Western until 3:15 P.M. on Saturday. Also the fact that

Western's daily average is slightly above three enables her occasionally to get in an extra loan per week. Chicago's hours for loans allow more liberal privileges for the benefit of students living in distant parts of the city.

RELATIONSHIP BETWEEN THE FACTORS

The influencing factors were found to have definite relationships to each other. These relationships may be expressed as follows:

Number of students \times number of pages to be read = Total number of pages to be read by all the students

Number of pages read per hour by a typical student \times average loan period in terms of an hour } = Number of pages read by a typical student during one average loan period

Total number of pages to be read by all the students } = Number of loans needed for all the students

Number of pages read by one student during one loan period

Number of loans needed for all the students } = Number of books needed for all the students

Number of loans one book may be expected to make within the given period

Or, for convenience, this relationship may be stated in a formula as follows:

Where

a = Number of students in the class

b = Number of pages to be read

c = Number of pages read per hour by the typical student

k_1 = Length of an average loan in terms of an hour

k_2 = Number of loans a book may be expected to make in the given period

Then

$$\frac{a \times b}{\frac{c \times k_1}{k_2}} = x, \text{ the number of books or copies needed.}$$

As we have stated above, it will be necessary to know the number of titles on the reading list in order to know whether the quotient represents duplicate copies or separate books. If a specific book is assigned, then the problem is worked out for that title separately and the quotient refers to duplicate copies; if several books are recommended, any one of which may be read, then the problem is worked out for the whole bibliography at once and the quotient refers to the number of books needed, i.e., either separate titles or duplicate copies of some of the titles.

III

APPLICATION OF THE TECHNIQUE

Two examples of the application of the technique are made to show its practicability. Its objective basis of measurement has proved useful to the investigator many times. It has furthermore been a source of economy in the administration of the budget.

At Western Kentucky State Teachers College an instructor in a psychology class purchased with departmental funds five copies of Warren and Carmichael's *Human psychology*. He placed them at the reserve desk with the comment that these were believed to be sufficient. Two weeks elapsed and he came to say that his students were complaining that they did not have enough books. With facts about his class and the assignments furnished, the librarian used the formula to determine how many copies his class needed.

$a = 50$ students in the class

$b =$ Approximately 50 pages to be read per week

$c = 28$ pages read per hour by the typical student

$k_1 = 0.62$ hours (37 min.) per average loan

$k_2 = 19$ loans per average week

Substituting in the formula, we get

$$\frac{a \times b}{c \times k_1} = \frac{50 \times 50}{28 \times 0.62} = \frac{50 \times 50}{28 \times 0.62 \times 19} = 7+, \text{ or } 8 \text{ copies.}$$

The five copies had evidently been too few. The instructor agreed to purchase three extra copies, and no further difficulties were reported throughout the three remaining months of the semester. Since each copy is good for about nineteen loans to a week, the class was short fifty-seven loans. No wonder they were in trouble. The instructor was completely converted to the efficacy of the formula.

An example from the data sent from Hamline University will show other practical uses of the formula.

$a = 80$ students

$b = 3,000$ pages to be read during the semester

$c = 28$ pages read per hour

$k_1 = 1$ hour per average loan in most colleges

$k_2 = 304$ probable loans per semester (19 loans per week \times 16 weeks. Sixteen is used instead of eighteen because little reading may be expected during the first and last weeks of the semester)

Substituting in the formula in this case, we get

$$\frac{a \times b}{c \times k_1} = \frac{80 \times 3,000}{28 \times 1} = \frac{80 \times 3,000}{28 \times 1 \times 304} = 28.0, \text{ or } 28 \text{ books.}$$

Twenty-eight books will be needed. Twenty-one titles occur in the bibliography. One duplicate copy of seven of the books, or eight duplicate copies of one, or sufficient duplication in one fashion or another to make twenty-eight separate books, will be needed for the eighty students. Without the accurate calculation of the formula, many more books might have been guessed as being necessary. This number is believed to be sufficient unless the reading is generally postponed until the end of the semester. Frequent checking-up on students' reading by the instructor is important in cases in which so long a time is allowed. Postponement, of course, means congestion at the last and a demand for additional copies. It will be observed that a longer period of time for the reading allows fewer copies to serve a class

than a shorter period does. In many cases, however, a semester is found to be too long a time to be advisable.

The benefits which the investigator has experienced from the technique and its analysis of loans may be summarized as follows:

1. An accurate determination of the number of books or copies needed.

2. Prevention of the purchase of unnecessary copies.

3. A means of immediate diagnosis of unsatisfactory conditions. A week's record of the circulation of a popular book will enable the staff to see whether or not a book is being "overworked." When its loans exceed the average per day or per week, the book is being "overworked" and the students will be in straits.

4. Need for change of assignments to fit the given conditions. If the number of books or copies and the number of students are known, determination can be made of the amount of reading which can be done within a given time by finding the value of b in the formula. Likewise, the time that should be allowed for an assigned reading with a given number of books can be found by substituting the other data and finding the value of k , in the number of loans. Dividing this quotient by the average number of loans per day or per week, one can readily compute the length of time that should be allowed.

These facts are especially helpful in a time of reduced budgets.

IV

CONCLUSION

The technique is believed to be valuable because it can be adapted to any college by substituting in the formula data for any institution and any class within the institution. At the beginning of each term the librarian and the instructors can assemble the necessary data for each course, substitute the figures in the formula, and find out how many books or copies will be needed for that term for every class. The following is an outline of the simple facts to be collected:

1. Standardized data
 - a) The number of pages read per hour by the average student. Twenty-eight pages for non-fiction may be used in most situations until further studies give separate rates for the different subject fields.¹⁵
2. Data peculiar to each institution
 - a) The lengths of the average daytime loan can be secured rather easily once for all time, or until college or library conditions change, by keeping a record of fifty loans and getting the statistical mean or the average of these loans. This will be sufficiently accurate for use.
 - b) The number of loans that a book in demand will make can be secured without much difficulty by keeping the circulation figures at the reserve desk over a period of two or three weeks in an ordinary term. Analysis of this record will give the average number of loans a popular reserve book will make in a day and in a week. If these averages for the two or three weeks are consistent when compared with each other, they will be reliable.
3. Data that vary from one class to another within an institution
 - a) The number of students in the class.
 - b) The number of pages to be read.
 - c) The time allowed for the reading.
 - d) The number of titles on the reading lists and the type of assignments.

It is believed that the technique will enable librarians and teachers in normal situations to solve their problems with regard to the number of books or copies needed for closed-shelf reserves for a given class when assignments are at all definite. The method is simple enough, it is also believed, to be practicable for use by busy college librarians and instructors. The accuracy of the formula's computation will be a great improvement over the unreliability of the old method of guesswork.

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¹⁵ If a test in reading rate and comprehension is given at each college, the calculation will be all the more accurate.

THE NEED OF COLLEGE AND UNIVERSITY INSTRUCTION IN USE OF THE LIBRARY¹

LIBRARIANS are, for the most part, well aware that the general public knows very little about the use of a library as a source of information. College and university librarians are repeatedly astonished at the lack of knowledge of library technique on the part of students, research workers, and even on the part of instructors. Library staffs are continually reminded of the inability of college graduates to make effective use of the facilities available to them. There is a question, however, of just how much or how little the average person knows of the technique of using a library as a source of information on subjects that interest him personally. There is another question of particular interest to those engaged in college and university work. How much does the undergraduate and the graduate student, in the course of his college and university studies, learn concerning methods of using a library? The answer to this would bring us immediately to another question of even greater importance: What changes, if any, are needed in our educational system if we are to develop a greater degree of student independence and initiative in using the library as a source of information?

The present paper is a discussion of the results of a recent study to obtain light on these questions.

During the past year, carefully selected groups of graduate students at the University of California and at Stanford University were given a comprehensive examination² on the use of the library. Of the 354 graduate students who took the examination, 32 per cent were first-year graduate students, 42 per cent second- and third-year graduate students not yet admitted to

¹ This paper, by Peyton Hurt, University of California, was read by Donald B. Gilchrist, Librarian, University of Rochester, before the Twenty-first Annual Conference of Eastern College Librarians, at Columbia University, December 2, 1933.

² Copies of the examination may be obtained upon application to the School of Librarianship, University of California, Berkeley, California.

candidacy for the Doctor's degree, and 26 per cent fully qualified candidates for the Doctor's degree. Thirty-seven per cent held university appointments, and 15 per cent were seeking teachers' certificates. It was a select group chosen to represent those who have received the best and most extensive training these universities have to offer.

The examination covered four points: (1) ability, (2) instruction, (3) frequency of use, and (4) desire for instruction or information on the use of the library.

In the matter of ability to use the library, these graduate students revealed some startling deficiencies. On a test on the card catalog, 34 per cent received lower than C grades. The candidates qualified for the doctorate made much the best showing in A grades, but they made only slightly less than the average percentage of D and E grades. To substantiate the conclusion that many of these students were not well informed on the use of the card catalog, 65 per cent of them declared that, in their opinion, they did not know enough about "the subject arrangement of catalogue cards"; 74 per cent stated that they did not know enough about "the treatment in the card catalogue of bibliographies, periodicals, learned society publications, outlines, collections, and other such materials"; 49 per cent declared they often felt "need of advice or assistance in using the card catalogue."

On periodical indexes, the students' answers were not at all satisfactory. Asked to name general periodical indexes in addition to the *Readers' guide* and given a broad hint at the name of the *International index*, many of them failed to name a single index, while a number of others named only indexes dealing with their special subject fields. In the social sciences, where general periodical indexes are most important, 56 per cent made D and E grades on this part of the test.

To test further the students' knowledge of library tools, they were asked if they had ever used the following works: the *Union list of serials*, the *Library of Congress catalogue*,³ the *United*

³ The question read "Library of Congress catalogue, commonly called 'union catalogue.'" It referred to the "union catalogue" at the University of California, which

States catalogue, the *British Museum catalogue of printed books*, and the *Library of Congress list of subject headings*. The last item was included because it was felt that, perhaps, many graduate students would have used all of the first four and, for them, the relatively little known *List of subject headings* would be a proper measuring stick on the use of library materials. It was not needed. Fifty-three per cent of the students had never used any of the five works. Only 9 per cent had used three out of the five. In each case, an overwhelming majority of the students declared they had never used the work named. The record of the Ph.D. candidates was almost as bad as that of the first-year graduates.

A more difficult test was that of asking the students to name sources of information. They were asked to name the following: (1) "a source of information concerning geographic names and places," (2) "the most scholarly and authoritative dictionary of the English language," (3) an "authentic source of English biography (other than *Who's who*)," (4) an "authentic source of American biography (other than *Who's who in America*)," and (5) "the most important general index to book reviews (a publication which cites reviews in the more general fields and also gives extracts from such reviews)."

Forty-two per cent of the students failed to answer correctly any of the five questions. Only 16 per cent answered three correctly. With very generous grading of the papers, a majority of the students failed on each question. There was but slight evidence of superiority on the part of the more advanced students.

Regarding the indexes and guides to government documents, ignorance was widespread. Fifty-eight per cent of the students did not know whether or not there was a good index to United States government publications. Eighty-nine per cent did not know whether or not there was a general index covering all state government publications. The best showing was made in

contains cards from the Library of Congress and various other large libraries, and to the comparable "proof-sheet catalogue" of Library of Congress cards maintained at the Stanford University Library. The wording was certainly clear to the students taking the examination.

the social sciences, but even here 44 per cent of the students missed the first question and 85 per cent the second. First-year graduates seemed to know more about the indexes to government publications than did the more advanced graduate students.

A few miscellaneous questions served to substantiate earlier evidence of student lack of knowledge of general library tools and techniques. But if they were ignorant of general library tools, what of the materials in their special fields of study? Twelve per cent were unable to name a learned society and a learned society publication of importance to their field of study; only 49 per cent named three or more. Sixty-nine per cent of the students named four or more periodicals of importance to their field of study; but only 28 per cent were able to name periodicals in three languages—13 per cent of the first-year graduates and 53 per cent of the Ph.D. candidates.

A series of questions was asked to determine whether or not the students had any considerable knowledge of the general indexes and guides to the literature of their special fields. The answers were very unsatisfactory. In fact, it seemed that many of the students did not distinguish between a periodical index, an abstract, and a bibliography, for many of them named the same work in answer to all questions. Others named alternately one of two works, apparently the two upon which they relied for the location of printed materials of interest to them. On the whole, the students gave no evidence of being well informed on the bibliography of their own fields of study.

If it is surprising to learn that these graduate students were thus sadly deficient in knowledge of library technique, how much more astonishing it is to discover that 62 per cent of them had never received any instruction in use of the library in any of their college courses, undergraduate or graduate! Sixty-three per cent of them stated they had never received even personal instruction in the use of the library from instructors or library assistants!

The amount of such instruction appears even more meager when one considers the restricted scope of much of the instruc-

tion given. While 38 per cent of the students had received some instruction in library use in college courses, only 27 per cent had received any instruction in use of the card catalog; only 27 per cent had received instruction in the use of periodical indexes; and no more than 13 per cent had received instruction in the use of indexes and guides to government publications.

In the next place, it seemed important to ask whether the students examined actually used the library to any great extent, and whether they felt need of instruction in its use. Did the students in particular fields use the library to a much greater extent than those in other fields? Were there some fields of study in which a knowledge of the indexes and guides to library materials was relatively unimportant?

The test covered frequency of use of the card catalog, periodical indexes, periodical literature, foreign-language materials, government publications, and some miscellaneous items. The frequency of use of these library materials differed, of course, according to subject fields. But the frequency of use of general library materials was high in every field except the physical sciences and a miscellaneous group made up of law, engineering, art, and a few minor subjects. It is important to note that students of the biological sciences were much closer to the social sciences than to the physical sciences in the frequency of use of the card catalog, general periodical indexes, government publications, and other general library materials.

There are good reasons for being skeptical of any analysis of student ability to use a library based on their answers to a set of questions about library tools and techniques. Such examinations are certainly not entirely trustworthy. Consequently, the graduate students who took this examination were asked to give their own opinions of their need of instruction in the use of the general library and also of particular library tools. In answer to specific questions, 68 per cent declared that, in their opinion, they needed "instruction or information concerning the general technique of using a library." Seventy-eight per cent said that "such instruction or information would have been useful in undergraduate work." Only 11 per cent favored neither

graduate nor undergraduate instruction of this character. Although the candidates for the Doctor's degree were more conservative in expressing their need of such instruction, a majority of them favored both graduate and undergraduate instruction.

Forty-nine per cent of the students declared that they needed instruction or information on the use of the card catalog. Eighty-one per cent said such instruction or information would have been valuable in their undergraduate work. Seventy-one per cent wished to know more about the scope and use of general periodical indexes. Eighty-two per cent felt need of further information with regard to indexes to periodicals in their special fields. Seventy per cent of the students felt need of instruction in the use of government publications—77 per cent of the first-year graduates and 60 per cent of the Ph.D. candidates. Finally, 56 per cent of the students declared that they were not satisfied with their knowledge of "the literature and the indexes and guides to the literature" of their subject fields.

The views of the students concerning their need of instruction in the use of library materials appear to substantiate the validity of the results of the examination as a whole. There was close correlation between the desire for instruction, the amount of instruction received, the ability of the students, and their frequency of use of the library. The desire for instruction was high in accordance with the frequency of use and the lack of instruction and ability. Thus, in the biological sciences, where the students had received less than the average amount of instruction and were below the average in ability to use library materials, but where the frequency of use of such materials was relatively high, 80 per cent of the students stated that, in their opinion, they needed such instruction. In the field of history, on the other hand, where the students had received the highest amount of instruction and showed the greatest knowledge of the use of library materials, the students expressed the lowest need of instruction, despite a very high frequency of use of the library. The students of the physical sciences were also noticeably below the average in expressing a desire for instruction in the

use of general library materials, but this was due to a low frequency of use and not to superior training and ability in this field. There was similar correlation of the data for other fields of study. In the matter of use of the library in general and use of the card catalog, periodical indexes, and other specific library tools, the expressed need of instruction was closely related to the actual need as shown by the students' ability, instruction, and frequency of use of such materials.⁴

If there is any doubt of the validity of the data on the extent of the desire for instruction in the use of the indexes and guides to printed materials, the comments written at the end of the examination papers should serve to remove it. Under the general heading "Remarks," more than one-third of the students wrote comments dealing specifically with the need of instruction in this field, while but a very few students wrote comments which could in any way be considered as opposing or doubting the value of this type of instruction.

There may be some question whether these data, gathered at two leading universities, are applicable to other American colleges and universities. Upon careful consideration, one finds many reasons to believe that this is a representative picture of the results of college and university training. Forty-seven per cent of the graduate students who took this examination were graduates of other colleges and universities, taking graduate work at Stanford University and the University of California. Both universities possess faculties drawn from similar institutions all over the country. Consequently, the instruction which these students had received would appear to be representative of the instruction given at other American colleges and universities.

The chief elements of such instruction are lectures and assigned reading. There is some so-called independent work, consisting of term papers, reports, and theses. There are also independent-study courses, and at some institutions these independent-study plans are of a rather elaborate character. But a care-

⁴ This may be observed by comparing individual subject fields with the total group (that is, with the average) in the accompanying tables.

ful analysis of such experiments reveals that in nearly every case the element of independence is entirely removed by the use of a reading list, a "five-foot shelf," or a small special library collection.

Some instructors attempt to avoid the element of spoon-feeding by assigning term reports or papers to be prepared wholly without advice or assistance. One familiar with the library research methods employed by the great majority of students must realize that this independent work is far too often work for the library assistant, with little beneficial training for the student. Where the student remains entirely uninstructed in bibliography and library use, the assignment of term papers and reports is much like throwing a person into a pond to learn to swim. Many potentially good swimmers may drown; others may lose heart or become afraid of the water; a few resourceful ones may come ashore. But, at best, they will swim "dog-fashion," and certainly a great many will do nothing better than the lowly "mud-crawl." As one student expressed it: "In time a graduate student can learn by himself what he needs to know about the library and its contents, but such is not the most efficient way of learning."

It would seem fair to ask if it would not be advisable to teach the use of library materials and then throw the students into the ponds of economics, history, biology, and other subjects, to the abandonment of the time-honored method of instruction by lectures and assigned reading. Would not such procedure lead to continued study and reading on the part of those who become interested in various subjects? Would it not tend to create independence and initiative which would be highly useful after college courses were a thing of the past? Would it not pave the way for intelligent adult self-education?

The least we can do is to meet the students' demand for instruction in the use of library materials. Clearly, there is need of more instruction in library use and in general bibliography, and more instruction in the literature of special fields of study. Need for co-ordination of library use and instruction in various subjects seems beyond question.

The University of California is now taking steps in that direction. As a result of the present study, the university is introducing a course in library use and general bibliography. The course, under the School of Librarianship, will be open to upper division and graduate students in all fields, but will be designed especially to meet the needs of students in the social sciences. Various departments of the university have indicated that they will recommend the new course to their students. The history department will recommend it as preparation for its own required course in historical method, and is considering the propriety of making it an absolute prerequisite. As the plan develops, this central course in library use and general bibliography may become the basis upon which departmental courses in the literature of special fields may be erected.

It is highly significant that this step to offer basic instruction in library use and general bibliography comes at the very time that the University of California is inaugurating an independent-study plan under which students are permitted to take examinations for credit in subjects in which they may have received no formal instruction. If other institutions proceed in this direction, it is likely that, in the future, colleges and universities will offer more instruction in use of the library and less instruction in particular subjects; it is likely that there will be more independent use of the library and less assigned reading.

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TABLE I

SUMMARY OF DATA ON USE OF THE LIBRARY IN GENERAL
(Instruction, Frequency of Use, and Desire for Instruction or Information)

STUDENTS WHO TOOK THE EXAMINATION	RECEIVED SOME LIBRARY INSTRUCTION IN COLLEGE COURSES (PER CENT)	USED CARD CATALOG FREQUENTLY (ONCE A WEEK)* (PER CENT)	DESIRED INSTRUCTION OR INFORMATION ON GENERAL USE OF THE LIBRARY	
			As Graduate (Per Cent)	As Under- graduate (Per Cent)
<i>Total Group</i>	38	70	68	78
First-year graduates.....	37	72	77	78
Second- and third-year graduates..	38	70	67	84
Ph.D. candidates.....	41	70	58	67
<i>Subject Groups:</i>				
Science.....	21	55	64	66
Biological sciences.....	27	73	80	80
Physical sciences.....	16	40	50	54
Social Science.....	44	83	65	82
History.....	53	84	50	82
Economics, business administration	42	85	75	87
Political science, psychology, etc...	37	80	66	76
Economics (minus bus. admin.)...	19	89	81	81
Economics, political science.....	25	86	79	82
Language and literature.....	33	93	67	86
Education (for degrees).....	55	75	75	95
Law, engineering, art, etc.....	37	41	80	69

* Frequency of use of the card catalog is taken here to indicate frequency of use of the general library.

TABLE II

SUMMARY OF DATA ON USE OF THE LIBRARY CARD CATALOG
(Ability, Instruction, Frequency of Use, and Desire for Instruction or Information)

STUDENTS WHO TOOK THE EXAMINATION	MADE ABOVE C GRADE ON TEST ON USE OF THE CARD CAT- ALOG (PER CENT)	RECEIVED SOME CARD CATALOG INSTRUC- TION IN COLLEGE COURSES (PER CENT)	USED THE CARD CAT- ALOG FREQUENT- LY (ONCE A WEEK) (PER CENT)	DESIRED INSTRUCTION OR INFORMATION ON USE OF THE CARD CATALOG	
				As Graduate (Per Cent)	As Under- graduate (Per Cent)
<i>Total Group</i>	30	27	70	49	81
First-year graduates.....	31	23	72	66	86
Second- and third-year graduates..	32	29	70	56	85
Ph.D. candidates.....	26	26	70	46	68
<i>Subject Groups:</i>					
Science.....	24	16	55	58	71
Biological sciences.....	22	22	73	76	83
Physical sciences.....	26	12	40	44	52
Social Science.....	37	31	83	51	81
History.....	53	39	84	32	76
Economics, business administration	39	35	85	58	87
Political science, psychology, etc...	22	10	80	54	78
Economics (minus bus. admin.)..	45	14	89	67	81
Economics, political science....	38	13	86	61	84
Language and literature.....	39	26	93	56	88
Education (for degrees).....	33	35	75	75	100
Law, engineering, art, etc.....	16	27	41	61	72

TABLE III

SUMMARY OF DATA ON USE OF PERIODICAL INDEXES
(Instruction, Frequency of Use, and Desire for Instruction or Information)

STUDENTS WHO TOOK THE EXAMINATION	RECEIVED SOME PERIODI- CAL INDEX INSTRUC- TION IN COLLEGE COURSES (PER CENT)	USED FREQUENTLY (ONCE A WEEK)		WOULD LIKE TO KNOW MORE OF SCOPE AND USE OF	
		Special Indexes (Per Cent)	General Indexes (Per Cent)	Special Indexes (Per Cent)	General Indexes (Per Cent)
<i>Total Group</i>	27	31	8	82	71
First-year graduates	30	27	9	87	68
Second- and third-year graduates . .	27	24	7	82	73
Ph.D. candidates	23	47	8	75	72
<i>Subject Groups:</i>					
Science	19	42	3	73	71
Biological sciences	17	39	5	85	85
Physical sciences	20	44	2	62	60
Social science	33	31	10	77	69
History	32	11	5	58	61
Economics, business administration .	40	38	12	92	69
Political science, psychology, etc. . .	24	39	12	76	76
Economics (minus bus. admin.) . .	17	39	14	94	69
Economics, political science	20	37	12	89	71
Language and literature	28	14	5	93	63
Education (for degrees)	32	30	13	83	83
Law, engineering, art, etc.	24	22	4	76	69

TABLE IV

SUMMARY OF DATA ON USE OF GOVERNMENT PUBLICATIONS
(Instruction, Frequency of Use, and Desire for Instruction)

Students Who Took the Examination	Had Received Some Instruction in the Use of Gov- ernment Publications (Per Cent)	Used Government Publications at Least Once a Month (Per Cent)	Desired Instruction in the Use of Government Publications (Per Cent)
<i>Total Group</i>	13	45	70
First-year graduates	17	51	77
Second- and third-year graduates	11	40	71
Ph.D. candidates	12	55	60
<i>Subject Groups:</i>			
Science	3	40	62
Biological sciences	7	68	83
Physical sciences	0	18	44
Social science	23	58	79
History	16	42	84
Economics, business administra- tion	31	77	83
Political science, psychology, etc.	20	49	62
Economics (minus bus. admin.)	11	70	83
Economics, political science	18	72	84
Language and literature	2	7	58
Education (for degrees)	10	68	75
Law, engineering, art, etc.	14	34	73

BIBLIOGRAPHICAL WORK IN RUSSIA¹

TURMOIL, national catastrophe, war, and revolution generally are not favorable for literary and intellectual development. The struggle for existence becomes the main factor in the life of the people: the struggle for bread, for shelter, for warmth, and for clothing. All the rest is a rare and unnecessary luxury.

The October revolution of 1917 entirely changed, not only the economic and social-political order of the former Russian Empire, but also the ways and methods of cultural progress. The Great Russians are the predominant nationality in Russia; so science, art, education, etc., have developed with regard to this Great Russian nationality. Any development of minor nationalities under the old régime was only more or less tolerated. In the cities of Moscow and Petrograd the universities, scientific institutions, art galleries, museums, theaters, and the libraries grew rapidly; but at the same time the state of cultural affairs in the provinces was almost at a standstill.

After the revolution of 1917, and later after the organization of the Union of Soviet Socialist Republics (USSR), the political and administrative situation in this regard, as in others, changed. Instead of the two old capitals, Petrograd and Moscow, there have arisen many new "autonomous" political units, for the program of the Communist party includes the so-called "self-determination" of the minor nationalities.

The growth of cultural work in the new Soviet republics is admirably illustrated in the field of book production. In the beginning in each of these republics the books suited to the predominant elements of the population were printed. This decentralization of all cultural and scientific work necessitated, for the

¹ This paper was read before the Professional Library Club of Stanford University Library on January 19, 1931. It is a compilation and, in many cases, a translation made from sources found in the Hoover War Library at Stanford University. It is based particularly on the article "Organizatsiia bibliograficheskogo dela v RSFSR (1917-1927)" by the pioneer Russian bibliographer and library worker, E. I. Shamurin (In *Bibliografiia v SSSR i knizhnye palaty* (Kharkov, 1928).

purposes of practical convenience, the abandonment of the old methods of studying and recording book production. That is why a new basis of organization had to be found. In bibliography, as in all types of cultural-educational and scientific-research work, the new principles called for the breaking-away from the traditions and methods of the state bibliography of old Russia and for the unification of the work in the new republican centers, and thereafter for the exchange of experiences and methods among the various centers. Such centers have been created in the form of Book Chambers, and the methods of co-ordination of their workers have been decided in their annual conferences.

General principles of the organization of bibliography in USSR are given in the following quotations from the *Bibliograficheskiĭ izviestii*² [Bibliographical news, journal]: "There is not any question of the state or of sociological importance which can be solved without statistics. Neither can it be decided without bibliographical information on the literature of the subject." "In Russia bibliography has always been in the hands of private individuals. The new régime must give to bibliographical work an honorable place in the system of state institutions. Bibliography is work not of private individuals, but of the state." And much was accomplished, in the decade following, to justify this assumption.

From the first the two fundamental problems were recognized as being: (1) the regular registration of the current works published, and (2) the compilation of a general catalog of Russian books from the beginning of printing. Experience has shown that the difficulties to be solved in the state organization of bibliography could not be limited to these two problems. It became absolutely necessary not only to consolidate the bibliographical efforts of the individual bibliographers but, more than that, to put bibliographical work on a firm scientific basis, using the bibliographical technique and methods of Western Europe and of the United States. This latter tendency is a typical indication of Soviet enterprise.

²No. 1-2 (March, 1917), pp. 5-8.

The problem of bibliographical education, i.e., the training of the specialist-bibliographers, giving them sufficient technical knowledge to carry on the work of their predecessors, had to be considered. In this respect there have been certain achievements during the last decade.

THE BOOK CHAMBER AND BOOK PRODUCTION

Shortly after the revolution, in May, 1917, the Book Chamber was created in Petrograd. At its head was the well-known professor, S. A. Vengerov, one of the active initiators of its establishment. The function of the Book Chamber was to register all works issued in Russia. The lists were published in the journal, *Knizhnaia letopis'* [Book annals], which had been established in 1907.

At the Book Chamber was organized *Russkii bibliograficheskii institut* [Russian Bibliographical Institute], whose work was to systematize all current periodical printed matter as well as books. The Chamber worked on the preparation of bibliographical lists of the periodical publications and issued *Spiski povremennykh izdaniĭ* for 1917-18 [the lists of periodicals]. Simultaneously with this, the Book Chamber attempted a sort of *Readers' guide to periodical literature*. A great mass of material was sent to *Rossiiskii institut knigovedeniia* [Leningrad Institute of Bibliology (established in 1920)] to be indexed.

Also a special book fund was founded to make possible "the best use in Russia of the books scattered in her numerous libraries." In order to realize this undertaking, the Book Chamber was granted the right to secure so-called "compulsory copies" of all new printed material. In almost all of the large cities the Book Chamber had for this purpose a representative who had surveillance over the publishers. At the outset the work of registration of the new books was very inefficient. The publishers, regardless of the existing control and of instructions, delivered to the Book Chamber far less than their total output.

A great part of the activity of the Book Chamber was the collecting of bio-bibliographical material about men of letters and men of science in Russia—the continuation of the work of

Professor S. A. Vengerov, who began it in 1888. The Book Chamber also organized many book expositions. On May 9, 1920, the Book Chamber, in collaboration with *Russkoe bibliologicheskoe obshchestvo* [Russian Bibliological Society], opened the Library School in Petrograd. The following August, 1920, *Vserossiiskaia tsentral'nai knizhnai palata* [All-Russian Central Book Chamber] was established in Moscow and the Book Chamber at Petrograd went out of existence.

THE CENTRAL BOOK CHAMBER AND BIBLIOGRAPHY

A new era in the organization of the state bibliographical work began with the publication of a decree in June, 1920, by the Council of People's Commissars. According to this decree, all bibliographical work was put under the supervision of the People's Commissariat of Education. The decree required that this Commissariat establish many new book chambers in the provinces, organize bibliographical institutes and schools, organize reference libraries, publish books and journals on bibliographical problems, etc. Besides this the Commissariat of Education was required to supervise and enforce the gratuitous supplying of the depository libraries with new books, for heretofore, as one librarian remarked, "the compulsory copy of a book was a very rare guest in the library." For the execution of this decree, on August 3, 1920, at the state publishing house, was organized the above-mentioned All-Russian Central Book Chamber at Moscow.

The second half of 1920 and all of 1921 may be marked as a period of organization in the existence of the Central Book Chamber. With great difficulty the "compulsory copies" of printed matter were obtained from the publishers. A more difficult question was the regular publication of the *Knizhnai letopis'*, and a general improvement of this bibliographical journal. So, beginning in 1922, all efforts of the Central Book Chamber were directed toward this problem and toward the establishing of greater control over the publishers.

In addition, the Central Book Chamber was trying at this time to improve the methods of bibliographical description. For

this purpose in November, 1922, a conference of bibliographers was convened. Here many questions concerning the betterment of *Knizhnaia letopis'* were discussed. Some problems of cataloging were considered, and it was decided that, beginning in January, 1923, the governmental publications should be described on the principle of collective authorship (corporate entry). A proposal was made also at this meeting that the rules for cataloging be worked out.

Thus the Central Book Chamber had become not only a semi-administrative institution, registering the "compulsory copies," but it had assumed the place of a scientific-bibliographical authority; and as such it was regarded according to a decree published in August, 1924. Its functions were to receive and to distribute the "compulsory copies" of printed matter and to handle the registration of the output of the publishers. Registration and archive-preservation of the first copy, control over the publishing houses and printers, communications with bibliographical institutions abroad, foreign book-exchange, statistics of publishing, organization of the central informational-bibliographical bureau, theoretical work with relation to questions of bibliography, organization of the library schools, initiative in convoking of bibliographical conferences, etc.—these activities were all part of its work.

Naturally, not all of these projects were achieved at once. The great attainment of the year 1924 was the beginning of the book-exchange. Having no funds, even the largest depository libraries did not have a chance to receive books and journals from abroad. To remedy this disadvantage *Büro mezhdunarodnogo knigoobmena* [Bureau for International Book-Exchange] was established by a decree of the Commissariat of Education on August 3, 1923; the actual start of the work dates from October, 1924. By means of this bureau the libraries now receive a great deal of material either gratis or by paying only administrative expenses connected with the exchange. It was in 1924, also, that the outstanding event in the life of the Central Book Chamber and in the development of bibliography in Russia in the last decade took place. This was the first All-Russian Bib-

liographical Congress, called by the Central Book Chamber in December, 1924. The congress corresponds to the annual American Library Association Conference in the United States.

The year 1925 marked for the Central Book Chamber its separation from the state publishing house and its reorganization as an independent institution. The same year the Central Book Chamber published a bibliographical work entitled *Kniga v 1924 godu v SSSR* [Russian books in the USSR in 1924]. Beginning with the year 1926 a similar publication was published annually under the title *Ezhegodnik Gosudarstvennoi tsentral'noi knizhnoi palaty. Kniga v 1925*— [Year book of the State Central Book Chamber], and there was definitely established a guide to periodical literature in the new journal *Zhurnal'naia letopis'* [Magazine annals]. The following year (1929) the Central Book Chamber began the publication of a quarterly journal, *Bibliografiia*, devoted to the theory and practice of bibliography. This journal existed only a short time, and in 1930 it appeared with a changed title, *Bibliotekovedenie i bibliografiia*, which unfortunately was soon discontinued.

In 1926-27 the Central Book Chamber published a few books and pamphlets on library science, among them *Rukovodstvo po sostavleniiu alfavitnago kataloga* [Cataloging rules for the dictionary catalog] by E. I. Shamurin; *Instruktsiia po katalogizatsii proizvedenii kollektivov*, by H. K. Derman, G. I. Ivanov, and L. V. Trofimov [Instructions on the cataloging of corporate bodies, based on Anglo-American codes, illustrated with samples]. In 1927 a school of bibliography with a one-year curriculum was opened by the Central Book Chamber.

During the years following, indexes were published to the *Knizhnaia letopis'* for 1927, 1928, and 1929; and a cumulative index for the years 1917-26 is being prepared. This journal is considerably improved, and its description of books is being made according to American Library Association rules. The largest libraries of Russia for a time used these notes for their catalogs, cutting and pasting them on cards as some American libraries do with the British Museum accessions catalogs. This led the Central Book Chamber to a decision to print catalog

cards such as those distributed by the Library of Congress, the Prussian Staatsbibliothek, and others. This work was begun in 1925. At the present time in Russia there are thirty-one depository libraries located in various parts of the country. All these libraries are supplied with cards and books by the Central Book Chamber.

The Central Book Chamber has created a few committees which are working out many problems of scientific bibliography. Among these are: the committee for working out rules for the stabilization of the title-page; the committee on bibliographical terminology; and the committee on the adaptation of the Decimal Classification for Russian libraries.

ASSOCIATIONS AND INSTITUTIONS

Among institutions dealing with questions of bibliography in Russia is *Rossiiskii institut knigovedeniâ* [Leningrad Institute of Bibliology]. This institute was established in August, 1920, when the Russian Book Chamber was transferred to Moscow and there assumed the name Central Book Chamber. According to the by-laws, the functions of the Institute included: the theoretical working-out of the methodology and history of the book in Russia; the making of the complete card catalog of Russian books since the beginning of printing; development of Russian book-printing and bibliography; the making of the list of Russian periodicals and listing articles from them; scientific research in problems of classification; systematization of the bibliography of Russian books and periodical articles and foreign literature about Russia; and the organization of the special central bibliographical reference library.

The functions of the Institute were not well differentiated from those of the Central Book Chamber. In order to avoid parallelism in the work of these two institutions, a committee appointed in December, 1920, decided to confer on the Institute the task of organizing the work of compiling the catalog of Russian books published before 1726. The same work for the period 1726-1900 was divided between the Petrograd Public Library and the Rumiantsev Library in Moscow. The period from 1901

to date was to be covered by the Central Book Chamber. (So far as I know, none of these works has been yet accomplished.) But, unfortunately, the state publishing house administration did not approve the project of working on the catalog of Russian books, for it was considered an "untimely undertaking." So, in 1922 the Institute was reorganized and its functions decided as follows: scientific research on the study of the book; bibliography of periodicals; and the training of bibliographers and librarians. In 1924 there was a new reorganization of the Institute, and finally in 1925 it was merged with the State Public Library in Leningrad and received the name of *Nauchno-izsledovatel'skii institut knigovedeniia pri Gosudarstvennoi publichnoi biblioteke* [Scientifico-Research Institute of Bibliology at the State Public Library]. Its functions were limited to questions such as might be dealt with by any other scientific-research institution. The Institute as now constituted has four sections: (1) section on the evolution of the book from the aspect of its technique and contents; (2) section to study the economic and social rôle of the book; (3) section on theory and methodology of bibliography; (4) section on journalism.

In spite of these upheavals the Institute accomplished in the years 1920-25 a worth-while task in indexing the periodicals for the years 1917-21. The indexing of the periodicals for 1922-25 was not as complete as that for 1917-21. Problems of cataloging, elaboration of subject headings, book expositions, etc., occupied no small part in the work of the Institute during this period. Among the publications of the Institute here must be mentioned *Instruktsiia dlia postate'nago raspisyvaniia periodicheskikh izdaniï*, Petrograd, 1923 [Instructions for indexing periodicals].

Among other institutions performing bibliographical work must be noted *Institut bibliotekovedeniia Publichnoi biblioteki SSSR imeni V. I. Lenina v Moskve* [Institute of Librarianship at the All-Union Lenin Memorial Library in Moscow]. Its main task has been to put library science on a sound basis by studying problems of theoretical and practical librarianship. The pedagogical work found its expression in the organization of a li-

brary school which now has a four-year curriculum, combining in the course cultural and technical training. The most important research section of the Institute is the committee for working out the code for a dictionary catalog. The results of this work have now been published. On this committee were some of the most prominent workers in the library profession in Russia, representatives of the largest libraries: the Communist Academy, the Public Library of Moscow, the Library of the Institute of K. Marx and F. Engels, the Library of the Historical Museum, the Library of the First Moscow University, the Central Book Chamber, and others. *Materialy, pod redaktsiei L. B. Khavkinoi* (Moscow, 1928)—the publication of the Institute—includes cataloging rules for Russian libraries.

In bibliographical development in Russia, an important part naturally was played by various bibliographical and bibliographical societies. Of first importance in this respect is *Russkoe bibliograficheskoe obshchestvo* [Russian Bibliographical Society] at Moscow, founded in 1889. Its activity is mostly evident in the organization of congresses and conferences for discussion of bibliographical questions. It began in 1889 to compile the catalog of Russian books, but during the October *coup d'état* of 1917 the greatest part of this work was destroyed in the damage done to the university building where the Society had its headquarters. At present the Society continues, though irregularly, the publication of the journal, *Bibliograficheskiia izvestiia* [Bibliographical news]. N. M. Lisovskii, a distinguished bibliographer, was one of its presidents, until his death in 1920.

Another organization which must be mentioned is *Russkoe bibliologicheskoe obshchestvo* [Russian Bibliological Society], also in Moscow, founded in 1899. During the revolutionary period it furthered bibliographical work by organizing meetings devoted to matters of bibliographical nature and to problems of historic and literary significance. During the first half of 1920 the Society took part in the organization of courses for the preparation of bibliographers.

In 1925 in Moscow *Rossiiskoe obshchestvo decimalistov* [Russian Society of Decimalists] was established, with its main purpose

that of furthering the adoption of the Decimal Classification in Russian libraries.

In the domain of bibliophilia should be noted the efforts of N. M. Lisovskii to organize in 1917 *Russkoe bibliofil'skoe obshchestvo* [Russian Bibliophilical Society] with the aim of making possible a book-exchange among bibliophiles. Unfortunately, this society was not very active and at the end of 1920 was disorganized, being superseded by *Russkoe obshchestvo družei knigi* [Russian Society of Friends of the Book]. The president of this society is V. I. A. Adarukov (joint-author with A. A. Sidorov of the book *Kniga v Rossii*,³ a very important source on the history of Russian printing). The Society is interested in the history of fine printed books and hopes to work out methods of further improvement in their formats. The members desire also the formation of a museum of the book.

In Leningrad should be noted the Society of Library Science, founded in 1908. Its activity may be noticed in the organization of courses in librarianship at the Leningrad Public Library (formerly the Imperial Petrograd Public Library).

There are many other societies having in general the same aims, among them: Leningrad Society of Ex-librists, Kazan Society of Friends of Books, Far-Eastern Bibliological Society in Chita, and others.

Considerable bibliographical work is being done at the present time by various scientific research institutions and governmental bodies, such as the Russian Academy of Art Science, the Library of the Academy of Science (which prepared, but has not yet published, N. M. Lisovskii's work "The List of periodical publications for the period, 1900-1917"), the Library of the Russian Academy of the History of Culture, the Communist Academy Library (which has published many indexes to different old Russian journals), the Central Archives, founded in 1922 (which collects and classifies all printed material of the revolutionary period), the International Agrarian Institute (which publishes the annuals of agrarian literature), the Institute of K. Marx and F. Engels (which has charge of collecting and

³ Parts 1-2 (Moscow, 1924).

publishing materials about Marx and Engels), and many other institutions, museums, and libraries which do similar work. There are also organizations interested in local bibliography and those concerned with the bibliography of the literature of minor nationalities. Furthermore, there are groups interested in special practical bibliography, such as that on the army, books for the masses, etc.

As to the bibliography of anti-bolshevistic literature, this work is too far from being completed to make it easy to record. The only step undertaken in this respect was the decree of the Council of People's Commissars (Sovnarkom) imposing on the People's Commissariat of Foreign Affairs, Interior, Cheka (Extraordinary Commission; G.P.U. is the present name of it, which means state political administration—the secret police), the order to collect all anti-bolshevistic literature and to send it to the People's Commissariat of Education for preservation. But its bibliography is still waiting for the bibliographer. (*Russkii nauchnyi institut v Belgrade* in 1931 published Volume I of *Materialy dlia bibliografii russkikh nauchnykh trudov za rubezhom, 1920-1930* [A Bibliography of the Russian émigré writers—books and articles]).

Trade bibliography has been improved considerably during the last decade. Of course, there are many so-called "cheap catalogs," but in general the catalogs are quite satisfactory. Those of the large publishing concerns (state, Communist party, trade-unions, and private) are made very carefully; and the items listed contain all the necessary elements of bibliographical description and are sometimes annotated and classified according to the Decimal Classification.

CONGRESSES AND CONFERENCES

One of the clearest manifestations of the Russian interest in bibliography and library work is evidenced by the many congresses and conferences devoted to questions of bibliography, librarianship, and book arts. Attempts at convening bibliographical conferences were made before the revolution, but at that time they were not so significant in Russian library history.

After the revolution their work became more intensive and productive. The most important of these meetings have been the all-Russian bibliographical congresses in Moscow—the first in December, 1924 (mentioned above); the second in November, 1926; and the third in 1929.

Preparatory work for these congresses was done by the Central Book Chamber. Among the papers read during the first congress were the following: *Koordinirovanie nauchno-bibliograficheskikh rabot razlichnykh uchrezhdeniĭ* [Co-ordination of scientific-bibliographical works of different institutions], by M. N. Kufaev; *O deśimal'noi sisteme klassifikatsii* [Decimal system of classification], by B. S. Bondarskiĭ; *O primenenii anglo-amerikanskoi instruktsii k russkoi bibliograficheskoi praktike* [Adaptation of English-American instruction to Russian bibliographical practice], by E. I. Shamurin; *O titul'nom liste* [Regarding the title-page], by A. I. Malein and A. D. Toropov; *O merakh k stabilizatsii titul'nago lista* [Concerning the measures for stabilization of the title-page], by E. I. Shamurin. Many other papers, interesting from the bibliographical standpoint, were presented. Resolutions approving much that was suggested were passed, and now many of the ideas have been adopted in Russian practice.

Besides the congresses there were also numerous conferences which discussed similar problems. Among these should be mentioned as most characteristic for the soviet development of libraries: the conference of librarians of special types of libraries; conference of children's librarians; and the conference of librarians of the trade-unions, etc.

These conferences and congresses are notable indications of the strong pulse of life in the library organization of Russia, and also they testify to the diversity of problems arising in Russian librarianship and to the strong efforts being made to bring about their solution.

LIBRARIES

In the field of library work in Russia a great deal has been accomplished in the last ten years. In 1931 there were 18,000 libraries with 59,000,000 books. It would not be the truth to say that there were no great libraries in Russia before the revolu-

tion. Indeed, there were magnificent institutions, such as the Imperial Petrograd Public Library, the Moscow Library of Rumiantsev Museum, and others of public and academic type. Many of them possessed unique copies of books which could not be found elsewhere. The Imperial Petrograd Public Library, for instance, had in a special case the Sacred Koran of Osman, one of the first manuscript copies of the Koran. This book was worshiped by Muhammadans of all countries and was the objective of the pilgrimage of many of them to Petrograd. After the revolution this Koran was given to the Moslem congress (by decree of December 10, 1917).

Unfortunately, the holdings of all these libraries were in part dead capital, because of the illiteracy of the great majority of the people; and the use of libraries was the privilege of only the educated classes of Russia. The revolution gave impetus to the development of libraries, and the introduction of technical facilities made of them not "cemeteries of books" but living bodies. The libraries, together with the bibliographical congresses and conferences already mentioned, are the most characteristic evidence of the interest in bibliography in present-day Russia.

The period 1917-27 was most favorable, especially for the scientific libraries, in regard to the acquisition of books. This was accomplished in two ways: (1) through the nationalization of the richest of the private libraries; (2) through the acquisition of the "compulsory" copies from the publishers, which the depository libraries received. During this period, together with the considerable enlargement of libraries already existing before 1917, new libraries of the so-called "academic" type, such as the Communist Academy Library, the Library of the Institute of K. Marx and F. Engels, Lenin's Institute Library, etc., were started. (The new Lenin State Library building in Moscow, when completed, will be the largest library in the world—bookstack capacity for 9,000,000 volumes and accommodation provided for 7,000 persons). But the most intensive work was done in the development of the chains of small public libraries and the creation of special libraries: for children, for the military class, for the professions, and the libraries for the minor na-

tionalities. The town and county library system was modeled on the California library plan.

Miss Richings of the Birmingham University Library found "that Russian libraries were well equipped and efficiently staffed, but that in organization and service the standard was far below that obtaining in England."⁴

CATALOGING AND CLASSIFICATION

The matter of greatest importance after the revolution was the improvement of the library catalogs. In this respect a great deal has been done. As a result of the work undertaken, instructions and rules for cataloging have been published and the quality of the catalogs has been considerably improved. E. I. Shmurin, *Katalogizatsiia* (Leningrad, 1925); H. K. Derman, G. I. Ivanov, L. V. Trofimov, *Instruktsiia po katalogizatsii proizvedenii kollektivov* (2d ed., Moscow, 1929); cataloging rules, published by the *Institut bibliotekovedeniia* (Moscow, 1928. In *Materialy . . .*)—these are a few samples of cataloging rules recently published. Since the demand for better catalogs required a great number of specially trained catalogers, courses in librarianship were established in many places. It must also be noted that a few correspondence schools on librarianship offered courses.

Elaboration of the rules of bibliographical cataloging was made by private individuals and by various scientific institutions and societies. In Leningrad the Institute of Bibliology, the Library School, the Institute of Comparative Study of the Literature of the Occident and Orient, and the Committee on Scientific Libraries worked to this end; and in Moscow the Moscow Institute of Bibliology, the Communist Academy, the Polygraphical Section of the Academy of Fine Arts, Archives of the October revolution, etc., were active. Indeed, the most noticeable work during the last decade was done in the field of cataloging. The changes have been revolutionary. All old systems of cataloging were entirely obsolete, and they have been super-

⁴ *Library Association record*, II, 329, cited in Vol. V of *The Year's work in librarianship* (1932).

seded by the new principles. The Prussian system gave place to the English-American. It is true that the work in this respect is not yet finished, for there are still many adherents to the old systems; but the outcome in the struggle between old and new is already decided in favor of the latter.

The favorite dream of Russian bibliographers and librarians had for years been the employment of printed cards for the catalogs. Now this dream has become a reality, for the cards are being printed for each book published. This problem was raised many times in prerevolutionary bibliographical literature, but only in 1925-27 was the idea finally adopted. It must be mentioned here that two Russian libraries—Moscow Lenin Public Library and Leningrad State Public Library—have become depository libraries of the Library of Congress cards (*Library of Congress report*, 1933). In the Communist Academy Library the printed cards of the Library of Congress are used for books in foreign languages.

The question of classification engaged the most serious attention of librarians in Russia, after the revolution. The struggle centered around the plea for adoption of the Decimal Classification. In the days before 1917 this system was used very little, but by the end of 1927 it had gained recognition in almost all types of libraries. This classification is used in the organ of state bibliography *Knizhnata letopis'* and also for printed cards. There is an extensive literature on the subject of Decimal Classification and its adaptation to Russian bibliographical and library practice. It was in January, 1921, that the general politico-educational committee of the Republic issued the decree which made compulsory the application of the system for the catalogs of all libraries of this committee and for the aforesaid journal *Knizhnata letopis'*. Efforts have also been made to introduce on all books outgoing from the publishers the ready class number of the Decimal Classification. The Library of Congress Classification also attracted the attention of the bibliographers and classifiers of Russia. "Beginning with 1925 the Library of Communist Academy has taken up the work of classifying the books according to the Library of Congress Classifi-

cation schemes" (*Biblioteka kommunisticheskoi akademii* [Moscow, 1928]).

CONCLUSION

Thus, in Russia the increasing number of persons who are interested in books and the spreading-out of education in the masses of the population made for a growing number of libraries and an increased library attendance. With this came the introduction of the dictionary catalog and the improvement of library technique and work with the reader—all real innovations in Russia.

Bibliography has become, not only the work of the state through its institutions, but also a kind of social movement. The growth of local bibliographical organizations, the work of many bibliographical societies, of special and scientific libraries, research institutions, academies, library congresses and conferences—these all attest the importance of "the science of the book" in present-day Russia.

In connection with this general outline, a few representative titles are given below. It is understood that many more titles could be given. No attempts were made to compile a comprehensive bibliography.

General library science

1. P. Kananov and others. *Rukovodstvo po razstanovke alfavitnogo kataloga*. Moscow: Central Book Chamber, 1929. [Manual for the arrangement of alphabetical catalog.]
2. *Biblioteka Akademii nauk SSSR. 1928-1929*. Leningrad, 1929. [Historical sketch of the Library of the Academy of Sciences.]
3. *Biblioteka Kommunisticheskoi akademii; eia organizatsiia i deiatel'nost'*, 1918-1928. Moscow, 1928. [The Library of the Communist Academy.]
4. N. K. Krupskaiia. *V pokhod za biblioteku*. Moscow, 1929. [Propaganda of the idea of development of small libraries.]
5. N. A. Rubakin. *Psikhologiia chitatelia i knigi*. Moscow, 1929. [Psychology of reader and book.]
6. M. N. Kufaeu. *Kak chitat' knigi*. Leningrad, 1929. [How to read books.]
7. Iu. G. Ivask. *Opisanie russkikh knizhnykh znakov*, Vols. I-III. Moscow, 1905-18. [Russian book plates.]
8. N. F. Ianiiskii. *Pechatnaia produktsiia RSFSR v 1926 godu*. Moscow: Central Book Chamber, 1928. Pp. 142. [Printing output of the RSFSR in 1926.]

9. V. Ā. Adariūkov. *Russkii knizhnyiiznak*. Moscow, 1924. [Russian book-plates.]
10. A. Tšikulenko. *Rukovodstvo dlā bibliotekareĭ krasnoĭ armii*. Moscow, 1920. Pp. 31. [Guide for the librarian of the Red Army.]
11. O. E. Vol'ŕsenburg and A. N. Shlosberg. *Kak ustroit' i vesti malen'kuū biblioteku*. . . . Petersburg, 1921. Pp. 36. [Handbook for factory and village library.]
12. *Publičnaia biblioteka SSSR imeni V. I. Lenina. Sbornik. I*. Moscow, 1928. [General articles on bibliography and library science.]
13. *Zaochnye kursy po prepodgotovke bibliotechnykh rabotnikov profsoiuznykh bibliotek*. Moscow, 1929. [A series of correspondence courses on librarianship for the trade-union libraries. Briefly covers the whole field of library science.]
14. P. Kolmakov. *Zaochnye bibliotechnye kursy. Krasnyi bibliotekar'*. Moscow, 1929. [Correspondence courses in librarianship for the Red Army.]

Cataloging and classification

1. *Slovary predmetnykh oboznachenii (rubrik)*. Edited by H. K. Derman. Moscow: Communist Academy Library, 1929. [Dictionary of subjects headings, based on that of the Library of Congress.]
2. A. G. Fomin. *Annaťsiii, teoriia i praktika ikh sostavleniia*. Leningrad: Institute of Bibliology, 1929. [Annotations—theory and practice.]
3. V. I. Nevskii. *K voprosu o nauchnoi klassifikaťsii v bibliografii*. (In *Bibliografiia*, Vol. I [1929].) [A new scheme of classification based on the fundamentals of Marxism.]
4. V. Bogatyrev. *Dvukhznachnye tablisy dlā mekhanicheskoi razstanovki knig i kartochek po alfavitu*. Moscow, 1920. (Cutter's tables.)
5. A. A. Pokrovskii. *Kak v biblioteke raspredeliaťsiii knigi po otdelam*. Tambov, 1919. (Short table of Decimal Classification.)
6. O. E. Vol'ŕsenburg. *Opyt instrukťsii dlā sostavleniia bibliotechnago alfavitnago kataloga*. Leningrad, 1925. (Cataloging rules.)
7. A. M. Belov. *Alfavitnyi katalog i annotaťsiii*. Leningrad, 1925. [Dictionary catalog and annotation.]
8. A. I. Kalishevskii. *Katalogizaťsiii v nebol'shikh bibliotekakh*. Moscow, 1919. [Cataloging in the small libraries.]
9. Glavpolitprosvet. *Desiatichnaia mezhdunarodnaia klassifikaťsiii knig . . . dlā obiaťzatel'nago upotrebleniia v bibliotekakh RSFSR*. Moscow, 1921. [Decimal Classification.]
10. E. I. Shamurin. *Katalogografiia*. Leningrad, 1925. [Cataloging rules.]

Work with children

1. A. K. Pokrovskaiā. *Razskazyvanie v biblioteke i v narodnoi auditorii*. Moscow, 1919. [Story hours in the library.]
2. A. K. Pokrovskaiā. *O rabote v detskikh i shkol'nykh bibliotekakh*. Moscow, 1919. (Work with children.)

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2. Moscow. Publichnaia biblioteka SSSR imeni Lenina. *Institut bibliotekovedeniia. Svodnyi katalog inostrannykh periodicheskikh izdaniĭ v bibliotekakh Moskvy. 1924-1928*. Moscow, 1930. [Union list of foreign periodicals in the libraries of Moscow.]
3. *Nauchnaia literatura SSSR; sistematičeskii ukazatel' knig i zhurnal'nykh statei*. 1928. Vyp. I. Mediŭsina. Moscow, 1931. (Tremendous work of recording of all scientific literature of Russia. Lists both books and articles. Only one volume is published so far: Medicine.)
4. Communist Academy, Moscow. *Lenin i leninizm*. Edited by H. K. Derman. Moscow, 1928. Pp. 365. (Subject index of the literature by and about Lenin in the Library of the Communist Academy.)
5. Communist Academy, Moscow. *Pervaiia russkaia revoliutsiia [1905]*. Moscow, 1930. Pp. 712. (Bibliography of the first Russian revolution of 1905.)
6. P. E. Skachkov. *Bibliografiia Kitaia*. . . . Moscow: Communist Academy, 1932. (A very comprehensive bibliography, classified, of China in the Russian language. Books and articles are listed.)
7. Communist Academy, Moscow. *Legal'naia soŭialdemokratičeskaiia literatura v Rossii za 1906-1914 gody*. Edited by G. Beshkin. [Bibliography of legal social-democratic literature in Russia, 1906-14.] Pp. 280. Moscow, 1924.
8. Russia. Tŭsŭentral'noe statističeskoe upravlenie. *Bibliografičeskii obzor izdaniĭ TŭSSU SSSR za 10 let (1918-1928)*. Moscow, 1928. Pp. 70. [Bibliographical outline of the publications of the Central Statistical Bureau of USSR, 1918-28.]
9. S. L. Danishevskii. *Opyt bibliografii Oktiabr'skoi revoliutsiia*. . . . Moscow, 1926. [Bibliography of the October revolution.]
10. *Bibliografičeskii spravochnik narodnoe khoziaistvo i voĭna*. . . . Moscow: Osoviakhim, 1927. Pp. 163. [Bibliography of national economy and the war.]
11. I. V. Vladislavlev. *Literatura velikago desiatiletiia (1917-1927)*. . . . Vol. I. Pp. 299. Moscow, 1928. [Belles-lettres of the decade 1917-27 bio-bibliography.]

DIMITRY M. KRASSOVSKY

HOOVER WAR LIBRARY
STANFORD UNIVERSITY

NOTES ON SOME SCIENTIFIC AND TECHNICAL LIBRARIES OF NORTHERN EUROPE

THESE notes contain a considerable amount of hitherto unpublished information collected at first hand on a recent study tour, in the course of which some of the most important scientific and technical libraries of seven nations in Northern Europe were visited. The tour was not, however, confined exclusively to libraries of specialized scientific or technical scope, but included some university libraries, the Bibliothèque Nationale, and the celebrated Palais Mondial at Brussels, for their interest from the pure librarianship point of view. It will be found that the various sections on comparison betray a sad lack of uniformity in their treatment. The writer did not set himself out to analyze and collate special aspects in detail; he simply jotted down in his notebook whatever features of special interest happened to attract his notice at each of the libraries visited. Moreover, the said notebook has not been elaborately edited or "polished" for publication. The notes which follow should therefore be accepted as an objective review; those who do not look for a philosophical treatise will not be disappointed. So let us now take the notes themselves (for what they are worth) without further introductory remarks.

Bibliothèque du Conservatoire National des Arts et Métiers, Paris.—The Conservatoire, founded shortly after the French Revolution, has occupied since 1798 the church, cloisters, refectory, and other premises of the ancient priory Saint-Martin-des-Champs, which was founded by Henri I in 1060. It is the so-called "science museum" of Paris, and its library is therefore the counterpart of our Science Museum Library in London. The Bibliothèque is housed in the ancient *réfectoire* of the priory which now forms the *salle de lecture*, and which P. de la Force, in his *Description de Paris*, considers "est ce qui existe de plus parfait dans le Gothique"; it is indeed rare to find a modern library of technical science housed in "une salle dont la beauté

architecturale élève l'esprit vers la haute méditation intellectuelle." The hall measures 140 feet internally, and is divided by seven central columns of remarkable boldness which support the lofty Gothic vaults; these are now shown up with beautiful effect by a modern system of illumination which was installed in March, 1932. The tables, with accommodation for more than one hundred readers, are provided with efficient indirect illumination.

Situated in the center of Paris not far from the Bibliothèque Nationale, this important library of technical science and industry is open to the public all week days from 10:00 A.M. to 10:00 P.M., and even on Sundays from 10:00 A.M. to 3:00 P.M. It is accessible without formality to students, research workers, inventors, and all interested in technical science. The activities of the library have steadily increased since 1920. It now contains more than 100,000 volumes (with many rare and precious manuscripts and early prints on the history of science), and receives 300 current technical periodicals. There is a card index to all the literature, with author and subject-matter entries in the same alphabetical series, after the American fashion. Since 1919 the Conservatoire has also established an *office de documentation scientifique et industrielle*, to abstract and index all French periodicals received in the library, and to provide a current documentation service for the public in the form of a dictionary card index. Decimal classification has, however, not yet been adopted. M. E.-M. Lévy, the librarian, considers that a modern library should be rather an "instrument de travail, et non pas cimetière d'imprimerie."

Bibliothèque de la Société des Ingénieurs Civils de France, Paris.—The word "civil" has a broad technical application in France, and this library is therefore not so restricted in scope as its name would perhaps lead one to suppose. It embraces, in fact, the whole of technical science, and is one of the most important and efficient libraries of its kind in Paris. Centrally situated near the Gare St. Lazare, it has been steadily built up by the Société over a period of thirty-seven years, contains at present more than 90,000 volumes, and receives about

500 current technical periodicals. It is intended primarily for members of the Société (who number 6,000), and is open on week days from 9:00 A.M. to noon, and from 2:00 to 5:00 P.M. In the author index, the publications of institutions and societies are entered directly under their titles (not under the town names); the subject-matter index is partly systematic and partly alphabetical, with adequate cross-references. Decimal classification has not yet been adopted. There is also a separate list of the relatively recent acquisitions, compiled since 1925 with annotated references cut out from the *Procès-verbal* of the Société and pasted by order of accession number in separate binders by subject matter. The current issues of the more important periodicals are placed at the immediate disposal of readers, who are not as a rule allowed direct access to the shelves. Volumes are shelved in four sizes by accession number, and are therefore easily located. Lack of adequate space has, however, rendered it necessary to place the smaller volumes two-deep (and in some cases even three-deep) on the shelves. The location and disinterment of volumes entombed in the third rows can hardly be a more formidable task than their subsequent replacement. Books are not allowed out of the library on loan, and lack of adequate staff also prevents the maintenance of any extensive documentation service.

Bibliothèque de l'Université, Bruxelles.—The university and its library are now housed some distance out from the center of the city in splendid new premises built since the war with American capital. The library is therefore of quite modern design. It serves all the faculties of the university, and the fact that the whole of the literature (over 80,000 volumes) is here efficiently classified, shelved, and located by the Classification Décimale demonstrates the scope and practicality of this international system. The card-index cabinets form the partition between the catalog room and the reading-room; the drawers are double-ended and can be opened in both directions. This renders the whole card index immediately available to both catalogers and readers and at the same time obviates the need of a duplicate set. The system had, I was told, led to many of

the obvious kinds of practical jokes to be expected from mischievous students; but in serious use such coincidences as when a drawer is pulled in both directions at once are quite rare.¹ The reading-room is spacious and well lit, and one end is completely taken up with a remarkably fine symbolical picture.

Bibliothek der Technischen Hochschule, Aachen.—The library is housed in a self-contained block near the various institutes of the technical university. It dates back to the year 1872. The complete index to the collection consists of a printed, bound handlist of the old-fashioned kind, with five supplementary volumes up to the year 1921, when Herr Carl Walther was appointed librarian and started a modern card index for new accessions. In 1923 the library contained 15,000 volumes; in 1929 the number had increased to 40,000 volumes. In six years' time the storeroom will need to be extended. The library receives 850 periodicals on technical science, 600 of which are laid out in the reading-room. The staff consists of four officers and four lady assistants. The loans department has developed rapidly in recent years; a visible card index has been found most efficient and saves the time of the staff. Walther is a keen supporter of decimal classification and hopes in due course to have his whole library indexed on this system. In addition to the usual author, subject-matter, and systematic indexes, he has a separate "location" index, in which each individual (binder's) volume has one card only. This index is to enable any required volume to be immediately located on the shelf; also it shows accurately the total number of volumes in the whole collection. The storerooms are of modern ferro-concrete fireproof construction, and there is an exceptionally fine collection of complete series of the world's most important scientific and technical periodicals from their first numbers. This library should be of particular value to students of the history of technical science.

Bibliothek für Kunst und Technik, Frankfurt-am-Main.—My visit to this library was in connection with the 1932 Conference

¹ This device is not uncommon in American libraries but is now being given up some.

of the International Institute for Documentation² held there under the able supervision of its director, Dr. Walter Schürmeyer, but unfortunately I could not find time to study its methods adequately and in detail. The library is a comparatively modern piece of architecture, the reading-room is spacious and comfortable, and there are a number of smaller studies or conference rooms, in addition to the main lecture hall in which the sessions of the conference were held. In the course of this conference, an exhibition was set out in the Bibliothek für Kunst und Technik to illustrate modern library equipment, such as visible file indexes, photostat apparatus, and the application of the "Adrema" system in mechanical selective documentation, which has been adopted with considerable success in the Bibliothek der Technischen Hochschule, Berlin,³ for example.

Stadtbibliothek, Frankfurt-am-Main.—This is an old library and therefore not laid out on modern efficient lines. Nevertheless, an "Adrema" machine was in operation there, but not with the mechanical selective device as used in the Bibliothek der Technischen Hochschule, Berlin. In the bookstores, overhead sprinklers are provided with automatic thermostat control, to come into operation in case of an outbreak of fire. I was shown a number of well-preserved manuscripts and early prints and some fine examples of the bookbinder's art.

Landesbibliothek, Darmstadt.—I visited Darmstadt in order to see this reconstructed State Library in the former Grand Ducal Palace. This reconstruction has necessitated a lot of work, both material and mental. Considerable structural alterations had to be made, and a modern card index to the whole collection had to be built up. The periodicals are well set out on racks and can be located with ease. Decimal classification has, however, not yet been introduced here.

Stadtbibliothek, Mainz.—This is pleasantly situated on the banks of the Rhine. In the Stadtarchiv are preserved the valu-

² H. P. Spratt, "The Frankfurt Conference of the International Institute for Documentation," *Year's work in librarianship*, V (1932), 183 (Appen.).

³ See subsequent section.

able old manuscript parchments (with the most elaborate seals) which relate to the municipal affairs of Mainz from historical times. The library is well ordered, with alphabetical author and subject-matter indexes, but of no particular interest from the technical point of view. There was, however, a fine exhibition of Goethe manuscripts and early prints, letters, and portraits, in connection with the centenary celebrations.

Bibliothek des Deutschen Museums, München.—The library of the Deutsches Museum (the German national museum of technical science) is the exact German counterpart of the Science Museum Library in London. It was opened to the public in May of 1932 and has set itself to collect the valuable literature of all times and all nations on the exact or technical sciences.

The collection amounted in 1933 to 152,000 volumes, 600,000 patent specifications, 43,000 maps and technical plans, 7,000 portraits, and more than 13,000 manuscripts and documents. In the treasures of the library are to be found letters of M. Faraday, A. von Humboldt, Jul. Rob. Mayer, Jos. von Fraunhofer, and others; a manuscript of Albertus Magnus (containing "Physicorum libri octo" and "De causis proprietatum elementorum," written *ca.* 1300), fine examples of Augsburg and Venetian incunabula from the press of Erhard Radtolt, the classical works of ancient science, such as Regiomontanus, Brunshwig, Appian, Copernicus, Kepler, Biringuccio, Agricola, Ramelli, Zonca, Veranzio, and other valuable rarities. The accessions of the library amount to about 8,000 volumes per year, most of which (about 75-80 per cent) are presented by authors and publishers. More than one-tenth of the entire collection is available in the reading-room for immediate use. Publications from the bookstore are placed at the disposal of readers, in response to written requisitions, in the spacious reading-room, which can comfortably seat more than five hundred.

Requisitions are made on forms similar to those used in most public libraries in Germany and are dealt with immediately. Since 1931 the books have been shelved simply in order of accession number; separate volumes, series, and periodicals are, however, kept apart. The new bookstore, which is not yet com-

pleted, will accommodate about 1,000,000 volumes on steel shelves. In the reading-room the books are shelved systematically, but within each main subject-matter division alphabetically under the authors. Just in front of the racks at table level, a horizontal booklist is provided which shows exactly the order of the books on the shelves above. The various card indexes to the whole collection are accommodated in a central room open to the public. Author and subject-matter indexes are kept separate; the former is compiled in accordance with the approved rules.⁴ The index cards of the international size, 125×75 mm. (5×3 in.), are either typewritten or mounted with references clipped from the special one-sided library edition of the German national bibliography.⁵ A catchword index serves for subject-matter classification of the collections. This is built up alphabetically in main sections, under which the smaller subdivisions are to be found. Where necessary, cross-references from the subdivisions to their main sections are provided; for example, "Neonröhren, *siehe* Leuchtröhren." When any subdivision becomes so extensive as to approach the size of a main catchword section, it is transformed into a separate section by itself. Thus there must also be cross references from the main sections to some of their more important subdivisions; for example, "Turbinen, *siehe auch* Dampfturbinen." The main sectional catchwords from the alphabetical subject-matter index are also collected into a separate systematic index which enables them to be more easily located in some doubtful cases. The decimal classification has, however, not been adopted at München. The accessions book serves as an inventory of the collections. The current periodicals received in the library (about 1,200 in all) are entered up on a visible card index (*Kardex* system) so that any number not duly received is clearly indicated. The latest issues of periodicals are laid out systematically by their subject matter in the reading-room and correspond

⁴ *Instruktionen für die alphabetischen Kataloge der Preussischen Bibliotheken* (2. Ausgabe; Fassung vom 10. Aug. 1908).

⁵ *Deutsche Nationalbibliographie* (Bibliotheksausgabe), bearbeitet von der Deutschen Bücherei, herausgegeben und verlegt vom Börsenverein der Deutschen Buchhändler zu Leipzig.

with the order in which the books are there shelved. A special room is reserved for daily newspapers, of which those with scientific and technical contents are retained. A refreshment room is also provided for the readers, with about one hundred tables. The library of the Deutsches Museum with its well-planned layout and adequate scope for subsequent extension will in the future become possibly the most important center of documentation for scientific and technical literature not only in Germany but in the whole world.

Deutsche Bücherei, Leipzig.—The Deutsche Bücherei is situated in the open, about half an hour's walk from the town in the direction of the enormous Völkerschlachtdenkmal. It is not a state institution, but a foundation of the Börsenverein der Deutschen Buchhändler, who in 1870 initiated the ambitious scheme to form a complete collection of all German literature and all that contains German *résumés*.⁶

The Deutsche Bücherei was founded in 1912, and in the year 1913 the work of collection was commenced. The town gave the land for the site and one-fifth of the cost; two-fifths came from the state of Saxony, and two-fifths from the Deutsches Reich. The structure was commenced in 1914 and completed in 1916. One-sixth of the entire project, of which I was shown a model, is now built. The site allows ample space for later expansion and an ultimate accommodation for ten million volumes. The collection at present contains more than a million volumes. The rate of accession is 70,000 per annum, and 60,000 periodicals are received, but no newspapers.

The subject-matter index of the Deutsche Bücherei is in principle alphabetical but, as is to be expected of such an extensive index, it shows marked tendencies to systematization and resultant breakdown of pure alphabetization.

Readers' tickets are issued at RM. 5.00 per annum. The main hall has accommodation for five hundred readers; it is well lit and the interior decoration is pleasant. At the time of my visit (Sunday) it was not open to the public, but I was told that as a rule it is well visited by readers, who are admitted on week

⁶ There is no comprehensive system of legal deposit in Germany.

days from 8:00 A.M. to 10:00 P.M. The Deutsche Bücherei contains some spacious conference rooms and well-equipped lecture halls which are used for papers and discussions on German literature, scientific and technical subjects, the book industries, and questions of library technique.

One of the most valuable publications of the Deutsche Bücherei is the *Deutsche Nationalbibliographie*, of which a special library edition⁷ is issued each week. This is printed on only one side of the paper, in order to enable its references to be cut out and mounted on the international-size index cards 125×75 mm. (5×3 in.), as is done, for example, in the Science Museum Library.

Bibliothek des Vereines Deutscher Ingenieure, Berlin.—The library of the Verein Deutscher Ingenieure (of which the writer is a member) contains at present more than 16,500 volumes of technical literature, 4,000 volumes of bound periodicals, and 4,000 technical theses. About 900 current periodicals are received, and of these more than 200 are always on view in the reading-room. These are displayed vertically in racks (not laid out on horizontal shelves), so that the titles alone appear. In this way they take up much less space, are more easily visible, and do not collect the dust to the same extent. The use of the library is primarily reserved for members of the Verein, but this rule is not strictly adhered to in practice. There is a very efficient documentation and information service⁸ based on a card index of all important technical books and articles in periodicals of the last twelve years. This has the usual alphabetical author and subject-matter indexes. The latter is not yet decimally classified, but I understand that this may be done in the near future; also that decimal classification numbers will be used in their excellent periodical documentation review, the *VDI—technische Zeitschriftenschau*.

Bibliothek der Technischen Hochschule, Berlin.—In this library what appealed most to my mechanical turn of mind was the

⁷ See n. 5.

⁸ Dr. E. Pfeiffer, "Der Literaturnachweis des Vereines Deutscher Ingenieure" (I.I.D., Vorträge der 11. Konferenz, Frankfurt), II, 243.

"Adrema" machine which my friend Dr. Albert Predeek has successfully adapted to the special requirements of librarianship.⁹ This mechanical selective documentation, by means of embossed metal index-plates, has already been reviewed in some detail;¹⁰ it now remains to describe the advances which were only accomplished in 1933. The addition of an accessory switchboard now renders it possible for the machine not only to select different subject matters, but also to discriminate in accordance with so-called "points of view." This switchboard has two rows of thirteen switches; the number of possible interconnections is therefore 2^{13} , or 8,192. Each combination of switches sets the machine to select the index-plates by virtue of the embossed projections which constitute their mechanical differentiation. The machine selects one or more subject matters; one or more "forms" (i.e., author-works, periodicals, series, publications of institutions, etc.); one or more countries or continents concerned (Germany, Europe, America, etc., or international); one or more *Sprachen* (German, French, etc.); and, finally, discriminates between those publications which are to be found in the reading-room or not. For example, if the librarian is asked what literature he has on "Transport," published as a periodical, with particular reference to America, written in German, and not to be found in the reading-room, he simply sets his "Adrema" for "Verkehrswesen, Zeitschrift, Amerika, Germanisch, Nicht im Lesesaal" and turns the switch. The machine then proceeds to search, and examines with undiminished speed or precision about seventy index-plates per minute until further orders.

⁹ Dr. A. Predeek, *Die Adrema-Maschine als Organisationsmittel im Bibliotheksbetriebe*. Berlin: "Organisation" Verlagsges. m.b.H. (S. Hirzel), 1930. S. 20. Preis, RM. 1-. See also Dr. Kurt Schellenberg, "Die technische Herstellung von Titeltzetteln," *Zentralblatt für Bibliothekswesen*, LXVII (1930), 406.

———, *Die mechanische Herstellung und Auswertung des technischwissenschaftlichen Literatur-Nachweises* (Publicatie No. 51; Nederlandsch Instituut voor Documentatie en Registratuur, 1930), p. 31.

———, "An Ever-ready printed catalogue," *Proceedings of the Eighth Conference, ASLIB* (London, 1931), p. 47.

¹⁰ Spratt, "Scientific (technical) libraries," *op. cit.*, Vol. IV (1931), Sec. III, "Bibliographical service," pp. 52-54.

Dr. Predeek also showed me a recently acquired completely automatic photostat machine, which turns out excellent photocopies within ten minutes. This was supplied by Siemens-Schuckert.

Universitätsbibliothek, Berlin.—The library of Berlin University adjoins the Prussian State Library in Unter den Linden, contains about 400,000 volumes, and receives about 600 current periodicals. The international standard size of index cards, 125×75 mm. (5×3 in.), is used here, but decimal classification has not been adopted. A numerical system of subject-matter classification is, however, used to a limited extent but not to such minute subdivision as in the Brussels system. The Universitätsbibliothek has recently celebrated its centenary.¹¹

Industrie Bibliothek der Allgemeinen Elektrizitäts Gesellschaft, Berlin.—In this specialized industrial and technical library, all the literature is classified by the *Dezimalklassifikation*, of which the librarian, Dr. Julius Hanauer, is an enthusiastic supporter. He also avoids the doubts and difficulties involved when periodicals are shelved in alphabetical order of their titles and has them all numbered for identification. Since the bookstores are accessible only to the library staff, it is not necessary to have the titles printed on the backs of bound volumes of periodicals; therefore their identification numbers with the year and volume numbers appear as their sole indication when shelved. This is easier for the staff to read than would be the smaller letters of the full or abbreviated title, particularly where the shelves may not be well illuminated. Moreover, since these identification numbers are stated when the publications are requisitioned, the whole system for the location of volumes on the shelves is so simplified that an unskilled staff can deal with it.

In addition to the foregoing numerical system for the identification and location of volumes, Dr. Hanauer also proposes an attractive scheme for the numerical classification of periodicals in accordance with the times at which their successive issues appear (*Erscheinungsweise*). For example, 52.6 denotes a weekly

¹¹ Rudolf Hoecker, *Die Universitäts-Bibliothek zu Berlin: Zu ihrem 100-jährigen Bestehen, 1831. 20. Februar, 1931* (Berlin, 1931).

periodical published on Fridays; 26.4 denotes a fortnightly periodical published on Wednesdays; and 24.5:20 would denote a half-monthly periodical published on the fifth and twentieth of each month.

Industriforeningens Bibliotek, Kjøbenhavn.—This is the most important technical library in Denmark, where it therefore occupies a position somewhat similar to that of the Science Museum Library in England, except that its scope does not include the so-called "pure sciences," and it is not a state institution. The librarian, Herr Oskar Thyregod, is a keen supporter of decimal classification, has applied it with excellent results to the very efficient documentation and information service maintained in his library, and has recently founded a Danish National Section for Decimal Classification.

The Danish "industry union" founded this library in 1838, and since 1913-14 it has been developed into a special library and information bureau for industrial research. It contains at present about 60,000 volumes, only about $\frac{1}{2}$ per cent of which are Danish; it receives about 480 technical periodicals, about 2 per cent of them Danish. Most of these periodicals are indexed, and cards sent to firms who desire up-to-date documentation on the very latest technical advances. All books and periodicals are indexed alphabetically by authors, and systematically with the Decimal Classification. In addition there is an exceptionally fine classified collection of patent specifications, standards, trade publications, and advertisements, and a useful index of trade-marks.

All volumes are bound on the premises. Photostat copies 16.5×29 cm. are supplied, price 50 øre (= 6d.) each. The *Indeks for Industrien*, a current index of articles in technical periodicals compiled in the library, is published at Kr.16 (about 15s.) per year. The staff consists of the librarian, six assistants, and the necessary operative personnel. Lack of adequate space and the need for expansion (the librarian's *bête noire*) will in this case soon be met by the provision of an additional bookstore in the spacious loft which is fortunately available.

Universitetsbibliotheket, Kjøbenhavn.—The history of this li-

brary can be traced back to 1482. In the year 1652 it was housed in the loft of Trinitatis Kirke, which burned in 1728. When the church was rebuilt in 1731, the library was once more accommodated in the loft. In 1818 a collection on natural history was added, and in 1867 the scientific section of another library was acquired.

The present university library was built in 1861 and extended in 1907. It now contains 430,000 volumes, only a little more than half of which are Danish. The library is entitled by law to receive copies of all Danish works which are required in connection with the university studies. In addition, it purchases from abroad the most important literature on pure science and medicine.

Some volumes of the old bound manuscript alphabetical book-index were shown to me by the librarian, as examples of how an index should not be made. Some of the later entries, squeezed in where there was not sufficient space, were almost unreadable; while in still more hopeless cases, an asterisk had been used—and then one had to hunt for the reference! The next development had been loose-leaf binders, and finally the modern alphabetical author and subject-matter and systematic card indexes. The librarian, Victor Petersen, who edits a periodical documentation of medical science, has been induced to adopt the Decimal Classification on trial. However, he appears to be still far from convinced of its suitability for his particular purpose.

In the periodical room (*Tidsskriftlæsesal*) the recent numbers of about 350 periodicals are laid out for readers. A visible card index is used to check the receipt of periodicals.

The library is in need of additional storeroom accommodation, and there are plans to build an annex outside the city in the near future.

Kgl. Veterinær- og Landbohøjskoles Bibliotek, Kjøbenhavn.—This is a specialized library of about 92,000 volumes on veterinary science, agriculture, horticulture, and forestry. The alphabetical and systematic subject-matter indexes have been compiled in the loose-leaf form, but will in due course be completely

converted to the modern card-index system. A special numerical subject-matter classification has been adopted; the subdivisions of the Brussels Decimal System were not considered to be sufficiently minute for the purpose of their very specialized collections. The books are shelved in accordance with the alphabetical author index, since readers do not have access to the storerooms. All volumes are bound on the premises. There are 300 periodicals laid out in the reading-room. The loans amount to 14,000 per year, to keep check of which the visible card-index system has proved itself indispensable.

Polytekniske Laereanstalt, Teknisk Bibliotek, Kjøbenhavn.—This is a comparatively small library of 30,000 volumes, restricted to technical science and closely related subjects, and intended primarily for the use of students in the technical university. The indexes are in loose-leaf binders, and the Decimal Classification is used for the subject-matter index. The books are shelved systematically in accordance with the main sections of the Decimal Classification, and then in alphabetical order within those sections. Periodicals are not bound, but the separate issues for each year are neatly filed in covers. Each separate issue is thus available to be sent out on loan. When a reader wishes to borrow, for example, an issue of the *VDI-Zeitschrift*, he is not either (a) overburdened with one of the ponderous bound annual volumes or (b) informed that it is already out on loan, i.e., because another reader has happened to want one of the other fifty-one issues in the same volume. The separate issues are sent out and returned in stout cardboard covers which afford ample protection in the post. In some cases where two copies of a periodical are kept, the second is bound in annual volumes and kept permanently in the library.

Dansk Farmaceutforenings Bibliotek, Kjøbenhavn.—I was taken to see this library, not because it is of any particular interest from the serious librarianship point of view, but rather as an example of the ultra-modern, which it certainly is. The vehement style of decoration and brilliant colors used in the reading-room may act as a mental stimulant. I involuntarily contrasted it with the sober atmosphere of the Science Museum

Library. The modern Parisian craze for the use of small letters, even for proper names, had been carried here to the extreme. However *chic* it may appear, it is nevertheless quite incorrect to print German substantives—such as *zeitschrift* or *bericht*, for example—with small initial letters.

Frederiksberg Kommunebiblioteker, Kjøbenhavn.—These public libraries use the Danish Decimal Classification for their systematic subject-matter indexes. This is a modified version of the Dewey system, and its main divisions are enumerated in the pamphlet *Hovudgrupperne i den af Bibliotekerne benyttede Decimal-Klassedeling*. In addition to the systematic decimal index, there are also alphabetical author and title indexes. The books I saw were exceptionally well bound; the librarian considered the expense was well justified, because of their durability and the fact that the public always treat a well-bound book with more respect.

The object of these libraries is to aid the public educationally and to supplement the work of the schools; so that the collections must necessarily contain children's books, fiction, and historical and cultural works. Nevertheless, I was surprised to see how relatively numerous were the scientific (and particularly the technical) books, which seemed to indicate a characteristic of the Danes as a practical-minded nation. The sectional "Katalog over Faglitteratur, Praktiske Fag. 60-69" fills a hand-list of 120 pages alone.

Tekniska Högskolans Bibliotek, Stockholm.—The new premises were opened in the summer of 1930, and the library is now completely installed there.¹² The *Bokförråd* (bookstores) are on four floors, with possible subsequent extension in the roof, and provided with an electric lift. The construction is of reinforced concrete, completely fireproof. The spacious reading-room has seats for sixty-six students; there is also a smaller reference room with twelve seats; and a number of private studies are also available on the first floor.

The librarian, Fröken Hilda S. Lindstedt, showed me over

¹² H. S. Lindstedt, "Tekniska Högskolans nya Bibliotek," *Särtryck ur Teknisk Tidskrift* (1931), Parts VII-IX.

the entire establishment and explained her methods in detail. She suffered from a lack of adequate staff and did all the intellectual work of the library herself, with only occasional voluntary assistance. She had visited several technical libraries in the United States and had adopted American methods. The books were shelved in broad systematic sections, within which the accession numbers were used to locate them. Miss Lindstedt was not in favor of either the Dewey or the Brussels decimal classification. A committee of nine professors decided what books were to be purchased for the library. All volumes were bound on the premises. The number of visitors was about fifty to eighty daily in term time.

Kungl. Biblioteket, Stockholm.—The Royal Library of Sweden dates from the early seventeenth century, and contains at present about 500,000 volumes, 12,000 manuscripts, 1,500,000 brochures and pamphlets kept in about 20,000 covers, and 200,000 copper-plates, maps, portraits, etc. In addition to the copies of all literature published in Sweden, the library acquires as far as possible books published by Swedish authors abroad and books about Sweden. The books are shelved in two sizes alphabetically. The rules for the alphabetical author index follow those of the British Museum. The subject-matter index is also alphabetical. From 1885 a Swedish Union List has been compiled in the library. The loan of books in the year 1928, for example, amounted to 23,270, in comparison with the number read in the library, which was 254,050. All books are bound on the premises. The library is built in a rather decorative style of architecture with traces of the French influence and forms a contrast with the modern "functionalism" of the new Stockholm Stadsbiblioteket, for example.

Stadsbiblioteket, Stockholm.—The quite new town library is a remarkable piece of architecture in the simple disciplined lines of the Swedish neo-classical style. The dominant feature is the lofty rotunda, around the inside walls of which 50,000 volumes are shelved in three circular tiers. The public has free access to the lowest (at floor level); the second and third tiers are set back in increased diameters, to provide for the necessary balconies.

The card index contains authors, subjects, and titles, all mixed up in one common alphabet, after the American fashion. Around the central rotunda are symmetrically disposed the reading-rooms with their diversified schemes of decoration. There are the White Room, the Yellow Room, and the Red Room; and a number of smaller rooms for lectures and for societies or clubs to meet in. About 800 periodicals and newspapers are received and laid out on inclined shelves for open access to the public. In most Scandinavian scientific libraries works in the vernacular are in the minority; in this public library I was therefore surprised to hear that 85 per cent of the collections were in Swedish, and only 3-4 per cent in German, for example. In the children's department, which is beautifully decorated and furnished with miniature chairs, tables, and bookshelves, there is the remarkable Story-Teller's Room. Seats for fifty children are set out in semicircular rows in front of a recess in which the story-teller sits and talks about fairies and "trolls" for an hour every afternoon. The walls are decorated with all kinds of fantasies, and the roof is an enormous umbrella.

Universitetsbiblioteket, Oslo.—This library serves simultaneously three functions: those of university library, national library, and municipal library. The staff consists of 13 librarians, 5 assistants, and 8 students of librarianship; the total personnel amounts to about 60 inclusive. This, the third structure, was planned in 1907 and completed (as it stands at present) in 1913. It covers an area of 2,120 square meters, and has a content of 36,160 cubic meters. The bookstore is in seven floors of fireproof construction and contains 800,000 volumes. The limits of its capacity have now been nearly reached, and an extension is planned to accommodate at least a 50 per cent increase. When the planned developments¹³ are completed, there is to be a cloakroom for 350 visitors, the reading-room will seat 250, and there will be 1,600 periodicals laid out. Private studies and conference rooms will also be provided; and there are to be

¹³ Oslo, Universitetsbiblioteket, *Universitetsbibliotekets Utbygning; en Utredning ved Overbibliotekaren* by W. Munthe ("Særtrykk av Universitetsbibliotekets Årsberetning, 1928-29" [Oslo, 1930]).

separate manuscript, folk-lore, and music departments, with sound-proof accommodation to enable visitors to play the music. One most attractive feature which I noticed was the Björnson room, furnished and decorated in the period, and dedicated to Norway's famous writer.

There are the usual alphabetical author and systematic subject-matter indexes (decimal classification has not yet been adopted in Norway to any appreciable extent). All volumes are bound, and all index cards and similar small work are printed on the premises. The library also has its own photostat and "Adrema" equipment, and an all-electric kitchen and luncheon-room for the librarians and assistants.

Bibliotheek der Technische Hoogeschool, Delft.—The technical university at Delft is the only one in Holland and is attended by about 1,500 students. The various departments and institutes are (as in London) situated in different parts of the town, which, with its narrow streets and canals, and its quaint, old-fashioned houses, forms a remarkable contrast to the modern scientific laboratories. There are 15 specialized libraries in these various departments, in addition to the central library, which alone contains 120,000 volumes exclusive of pamphlets. The entrance hall, which contains the loans department, exhibition of newly acquired books, and the card-index system, is in the form of a cloister. There are alphabetical author, subject, and systematic card indexes. The reading-room is decorated with some remarkable symbolic illustrations of the various aspects of science, invention, and industry. Each year the new students receive an initiative lecture and course of instruction on the technique of the library to help them to make the best use of it in the course of their studies at the technical university. All volumes are bound, and all index cards are printed on the premises. The machine with which this is done is a simple and presumably inexpensive hand press.

Since the ideas of the librarian, Dr. A. Korevaar, are in some respects contrary to my own, I enjoyed all the more a discussion with him on matters of technical librarianship. Since his nomination in 1925, he has done much to rationalize the work

of the library. In the first place, it had been necessary to draw up a new set of catalog rules, because for twenty-five years previously the staff had followed their own personal views, without any effort at unification. These rules for the compilation of title-entries have now been published in booklet form.¹⁴ Then the subject-matter index had to be reconstructed, for which purpose the Dewey and the Brussels decimal classifications had been considered, and, after trials which yielded unfavorable results, had been rejected. Dr. Korevaar considers that all systems for scientific classification must necessarily become obsolete after a time and require complete revision at about twenty-five-years interval; it is therefore of prime importance that the system should be "elastic" to permit such periodical revision. Usually it means that a whole index of cards would have to be renumbered individually—an insurmountable difficulty in most libraries. At Delft, however, the system is so "elastic" that only the main index cards at the head of each section need to be renewed. However, it appeared to me to be rather overburdened with cross-references, as is inevitable with an alphabetical subject-matter index. Dr. Korevaar considers (and here I differ from him) unification in classification to be not only impracticable but even injurious for many libraries. He considers that for each librarian to classify and index his collections in the most efficient manner he must choose the system which he finds best suited to his particular purpose. No one system (even the Decimal Classification) could possibly be at the same time the most efficient for all libraries with their various scopes and purposes. As he says, "We do not make book collections for the sake of classification, but we classify for the sake of the book collections; the classification must be subservient to the collections, their different natures and their special purposes; these demand different systems for their efficient classification, and unification would be a drawback and a nuisance in many cases." However, Dr. Korevaar evidently considers unification in librarianship desirable to a certain extent; in fact, he complains

¹⁴ Dr. Ir. A. Korevaar, *Titelbeschrijving aan de Bibliotheek der Technische Hoogeschool te Delft* (Delft, 1933). Pp. 82.

of its lack in connection with the Dutch technical union catalog which he compiles with the collaboration of thirty-nine technical and industrial libraries in Holland. Most of these libraries, he says, have not trained librarians and "send us a lot of defective titles, which require a lot of correction to be done before the titles can be inserted into the alphabetical union catalog." Thus we are led back to the conviction that even for such collaboration within small limits, unification of methods is desirable; for those of us who think and work internationally, it is essential.

H. P. SPRATT

SCIENCE MUSEUM LIBRARY
LONDON, ENGLAND

COLLEGE LITERARY SOCIETIES IN THE FIFTIES

IT IS the second anniversary of the Star Society. The early morning hours were spent in the cordial greetings of old friends whom the occasion has brought together. The announcement of the orators, some weeks before, is undoubtedly part of the attraction. At 10:30 the exercises open with prayer, followed by an oration on "Conservatism and reform." The subject is a little tedious, perhaps a trifle heavy for a hot summer's day, but with what volubility and erudition the speaker brings the glow of literary rapture to the countenances of his admiring audience! At a later date his eloquence might have inspired the great Delsarte. But let us judge for ourselves from his concluding words:

Our faces may turn with hope and courage toward the future, and yet, in our hearts, shall ever abide a profound thanksgiving for "the days of Auld Lang Syne." Can we have a better rule to guide our conduct, than that given to the world by Aristotle four centuries before Christ; that we should observe the golden mean between the extremes, and let our moderation be known unto all men? In thus keeping the middle way, we shall avoid on the one hand, Scylla, the rock of popular prejudice; on the other hand, Charybdis, the vortex of radicalism.¹

The remainder of the program consists of an "Essay on work," a dramatic reading ("well read but a trifle low and indistinct"), an oration on "The Value of an object in life," and ("last, but not least") a debate: "*Resolved*, That our liberties are more endangered by democracy than by aristocracy." The exercises are interspersed with music: a duet for piano and violin, Suppé's "*Overture to a Poet and peasant*"; a solo, Balfe's "Good-night, beloved" ("charmingly sung"), and a duet for cornet and piano, Brepsant's "*Troisième air varié*."

The old-fashioned literary society, the dominant collegiate activity of the nineteenth century, is now virtually extinct.

¹ Star Society records (1855-68).

Nothing has quite taken its place, although the opportunity which it afforded for social life and training in debate is, to a limited extent, retained in the fraternity and public-speaking class. It is true that those who aspired to a public career were its most active supporters, but the student who evinced no interest in public concern was a rare exception. Graduates worked up quite a lather over the literary exercise:

What boots it thy virtue?
What profit thy parts
While one thing thou lackest—
The art of all arts.

The evolution of the early literary clubs forms an interesting chapter in the annals of collegiate history. But to interpret the cultural significance of the literary societies from these records is a difficult task. All too frequently the picture of their programs and activities is buried beneath the débris of biographical detail. As a slight contribution to this study I have attempted to reconstruct their performances and exercises from manuscript minute-books and the files of an early student paper. Let us imagine ourselves back in a midwestern college in the fifties. This institution of learning, like so many others in this country, owes its origin to a religious body. In the center of the campus stands a large hall, the main and central building, in the form of a cross. It contains a chapel, lecture-room, recitation rooms, laboratory, society rooms, and a library. Standing back from this are two dormitory buildings, one on the north, containing dining hall, parlors and dormitories for "ladies," and one on the south, occupied as dormitories for "gentlemen."

One year after the college was founded, several of the more literary-minded students suggested the establishment of a student society. To those who complained of lack of time, the enthusiasts replied, "There is an economy of time as valuable as that of money." At the first meeting called for organizing a society, the chairman girded his loins for battle. He said: "In the classroom we obtain the facts, the raw material; but without the literary exercise this raw material is likely to lie in the

storeroom until it is ruined by the ravages of oblivion. In our textbook we follow the thought of another, but when shall we begin to think for ourselves, to have ideas concerning a thing, and make them known to others?" There remained only the question of faculty approval. This called for much discussion and the appointment of a committee to wait on the powers that be. Permission was finally granted. The society adopted a name—it was to be the Alethezethian—and both men and women were permitted to attend the regular Friday-afternoon meetings.

Alas! The old bugbear of sex comes up. The faculty cannot quite put aside the fears and prejudices of the day. "Why," they say, "here are young men and women sitting in the classroom, it is true, but considering together, under the ruling of their own officers [not faculty], such questions as are stirring the minds and hearts of people out in the world." It was too much. They withdrew their permission for young men and women to sit together at the meetings of the Alethezethian, much to the disgust of the student body, and the society was disbanded. Out of this condition arose the Star and Crescent societies, the former composed entirely of men, the latter of women. During the year they obtained permission to fit up a room in the college hall, where they held their meetings separately, the Crescents on Friday afternoon, the Stars on Friday evening, with the provision, of course, that the evening meeting break up before ten o'clock. And then the faculty made a monitory gesture which is difficult to explain after the previous year's ruling. They required the Crescent Society to invite members of the newly formed male society to their public meetings. It was not until three decades later that the coeducational experiment was extended to the societies.

How frequently and regularly the society meetings were held is evident from the weekly record in the manuscript minutes. Gaps occur only during the summer months. In the fall of the year 1856 we are introduced to the procedure of a typical society business meeting. A welcome surprise is in store for the old members. The proceeds from the initiation fee, annual dues,

fines for absence, tardiness, and non-performance of duty have been spent in refurnishing the society hall with a new carpet, a stove, and a piano. "Four of the ablest men," says the record, "are delegated to move the piano on the platform." The meeting opens with the roll call. While many of the old members have not returned, several new faces are present, each "showing in his countenance an eagerness for improvement which made them seem almost like old friends." Following the reading of the minutes, a motion is made to postpone the literary exercises for one week. The members then proceed with the business of the evening, which is conducted strictly according to parliamentary practice and the rules contained in Judge Burley's *Legislative guide*. For we must not forget that the chief function of the business meeting is "to aid its members in becoming rapid in thought and speech," and many an evening developed into a "war of words." In accord with the procedure at the first meeting of each term, the officers are elected: president, secretary, critic, librarian, editor, marshal, janitor, and treasurer. The critic's function is "to offer such remarks upon the performance of the reciters as are calculated for their improvement." Before adjourning, the retiring president gives a short address of welcome to the new members, in which he urges them "to be wide awake to the flight of time, and to the vast importance of improving their time, while so many grand opportunities are offered them by the literary societies."

The same spirit of rivalry which characterizes the modern fraternity rush existed in the student societies. It usually began with the soliciting for new members, each society making claims of excellence which could not always be substantiated. Personal encounters were not uncommon. On the other hand, it was not exceptional for several societies to share the same hall and on special occasions to invite one another to a public meeting in which the visiting society might be asked to participate. Public meetings were elaborately prepared. Orators were chosen several weeks in advance and faculty and members of the community were invited to attend. It was customary on such occasions to open the meeting with prayer and to confine the eve-

ning's entertainment to literary exercises. On one particular evening the program ran as follows:

- ORATION--The Law of gravitation
- ESSAY--The Cultivation of the mind and heart
- ORATION--Action, *or* No time to be lost
- POEM--The Bride of the Nile [original]
- ORATION--Much ado about nothing
- ESSAY--The Race of the Incas
- DISSERTATION--Conservatism and radicalism
- ORATION--A Word for Ireland

Intellectual, edifying indeed, but really not unusual for the Stars. The secretary makes no comment on the orations, but a jubilant note creeps into his minutes: "The audience, apparently in good spirits, dispersed."

Debate was taken for granted in the student literary societies. It was the duty of a standing committee to select timely and practical questions for discussion and to record them with the secretary. At least half of each regular meeting was devoted to questions of social and moral welfare. If they did not always settle such questions as "The Life of celibacy is preferable to a married life," "Capital punishment ought to be abolished," "In a republic laws should be obeyed," "Civil authorities should enforce the observance of the Sabbath," "Slavery should be abolished by Congress," or that "The Ladies of the college should be subject to the same restrictions as men," the young orators at least tried to think and each had his little hour of glory.

No program was more appreciated than the frequent celebrations of important dates, such as the "Bryant meeting," the "Longfellow meeting," and others. The program included selections from the author's work, essays and critical papers on his writings, and a consideration of his life. When Oliver Wendell Holmes was the author of the evening, the program read as follows:

- Sketch of the author's life
- Reading of his poetry
- Prose works
- Declamation--"One Horse-shay"
"The Chambered nautilus"

Early in the week the secretary had an inspiration. He would send a copy of the program to the author. It speaks well for the reputation of student literary societies that the secretary was able to present to his delighted audience a letter containing the best wishes of Mr. Holmes with his "hopes that they will not find their evening wholly thrown away on my company."

Less entertaining for the audience but more profitable for those who took part in the program were the language meetings, in which songs, orations, and dramatic recitations were given in French, German, and Latin. The anniversary programs were large affairs and it was customary for each society to bear its share of the expense for an outside speaker. Should the address prove disappointing, there were many other attractions to enliven the program: songs, student orations, piano selections, presentation of diplomas, and dramatic productions. It is possible that we owe a debt to the student literary societies for introducing drama into the colleges. As early as 1872 J. K. Hosmer wrote in the *Atlantic monthly* that at "Harvard, Yale and probably every considerable college in the country, the drama has for a long time led a clandestine life in secret student societies, persecuted or at best ignored by the college government."

The really remarkable thing about the college societies in the mid-nineteenth century is what they did for the cultural life of the student. Strangely enough, there were many things to dampen the enthusiasm of the most ardent members. Their activities were restricted by a crabbed ascetism; they were blighted by the deadliest gentility; dramatic production was regarded as an "unwholesome weed that deserved no tending"; and the expense of furnishing society halls, collecting libraries, and arranging the programs was considerable. And yet, curiously enough, the students often did things in good taste, with vigor, originality, and humor. These societies acquired libraries of character, more often than not superior to the "chance aggregations of the gifts of charity" which cluttered up the college library. Their meetings afforded opportunity for training in parliamentary law and in extemporaneous speaking. Life was

a serious affair to these young people. They knew what they wanted; they thought they had a definite goal. They were not assailed by the dizzy distractions of our collegiate playboys. They read good things ("wholesome" would be their word) and enjoyed them. These youngsters could have done worse things with their time.

GUY R. LYLE

ANTIOCH COLLEGE LIBRARY

THE CONTRIBUTORS TO THIS ISSUE

A. ELWOOD ADAMS, superintendent of schools, Rosemead, California, was born in Stuttgart, Arkansas, on January 4, 1903. Following his graduation from Indiana State Teachers College, he entered the school system of Elizabeth, New Jersey. He took his Master's degree at Teachers College, Columbia University, in 1929. From 1931 to 1933 Mr. Adams was at the University of Southern California, first as a teaching fellow and then as director of student teaching. He has held his present position since 1933. Mr. Adams is the author of "Group use of the junior high school library," in the *School review* (April, 1933), and "Extent of library reading in the junior high school," in the same journal (May, 1933).

EDGAR DALE is research associate and assistant professor of education in the Bureau of Educational Research, Ohio State University. He was born on April 27, 1900, in Benson, Minnesota. He was graduated from the University of North Dakota in 1921 and received his Master's degree in 1924. He was an instructor in the Winnetka Public Schools, 1924-26, and on the editorial staff of the Eastman Teaching Films, 1928-29. Mr. Dale received his Ph.D. from the University of Chicago in 1929. Since that time he has been in his present position. Mr. Dale is a frequent contributor to educational journals and is the author of *How to appreciate motion pictures* (New York, 1933) and *The Content of motion pictures* (New York, 1934).

MARGIE M. HELM was born in Auburn, Kentucky, on August 21, 1894. She is a graduate of Randolph-Macon Woman's College, 1916, and attended the School of Library Science of Pratt Institute, 1932. In 1933 she received her Master's degree from the Graduate Library School, University of Chicago. Miss Helm taught English and Latin before entering the library profession in 1919 as an assistant in the High Bridge Branch of the New York Public Library. In 1920-21 and 1922-23 she was assistant librarian of the Western Kentucky State Teachers College. Since 1923 Miss Helm has held the position of librarian. She was president of the Kentucky Library Association from 1927 to 1929.

PEYTON HURT was born in Windsor, Missouri, on June 11, 1903. He was graduated from the University of Idaho in 1926. In 1929 Mr. Hurt was awarded his M.A. degree from the University of California,

and in 1931 his Ph.D. in political science from the same institution. He received his Certificate of Librarianship in 1933. As an instructor in the School of Librarianship of the University of California, 1933-34, Mr. Hurt introduced the course in library use and general bibliography referred to in his article. He has contributed articles to the *Quarterly* of the California Historical Society, the *California monthly*, and the *American political science review*.

DIMITRY M. KRASSOVSKY, bibliographer of the Slavic collection in the Hoover War Library of Stanford University, was born on October 28, 1893, in Vladivostok. He attended the law school of the University of Petrograd, 1912-16, and the naval school at Oranienbaum, Russia, 1916-17. Mr. Krassovsky received his certificate from the School of Librarianship of the University of California in 1930. He has been in the Hoover War Library since 1926, holding his present position since 1930.

GUY R. LYLE: for biographical information see the *Library quarterly*, III (1933), 192.

B. W. SCRIBNER: for biographical information see the *Library quarterly*, I (1931), 477.

HERWARD P. SPRATT, B.Sc., born in London on September 6, 1902, is assistant keeper of the Science Museum, London. He received his degree from King's College, London, in 1924, and has since been active in engineering societies, contributing a number of articles to their professional journals. Mr. Spratt is the author of "Scientific (technical) libraries" in the *Year's work in librarianship* (London, 1931), "The Frankfurt Conference of the International Institute for Documentation," *ibid.* (1932), and "Libraries of technical science," *ibid.* (1933), as well as articles in the *Library Association record*.

RALPH W. TYLER was born in Chicago on April 22, 1902. He did his undergraduate work at Doane College, graduating from there in 1921. He received his A.M. from the University of Nebraska in 1923 and his Ph.D. from the University of Chicago in 1927. Mr. Tyler was assistant supervisor of science at the University of Nebraska from 1922 to 1929, associate professor of education at Ohio State University, 1929-31, and since 1931 has been professor of education at the same institution. With Douglas Waples he is the author of *Research methods and teachers' problems* and *What people want to read about*. He is also the author of *Service studies in higher education* and is a contributor to professional educational journals.

EDWIN ELIOTT WILLOUGHBY, who has contributed "The Cover design" to the *Library quarterly* since 1932, was born on November 5, 1899, in Philadelphia. He was graduated from Dickinson College in 1922 and received his Master's degree from the University of Chicago in 1924. From 1922 to 1929 Mr. Willoughby was with the Newberry Library, head of the public service department in 1929. In 1932 he was awarded his Ph.D. from the Graduate Library School of the University of Chicago. Since that time he has been professor of library science at the College of William and Mary. In 1929-30 Mr. Willoughby was a Fellow of the Guggenheim Memorial Foundation. During the summer of 1934, on a grant by the American Council of Learned Societies, he will go abroad to study the typography of the Second Quarto of *Hamlet* and of the other Shakespearean quartos issued by James Roberts. Mr. Willoughby is the author of *The Printing of the first folio of Shakespeare* (1932), *A Printer of Shakespeare: the times and books of William Jaggard* (1934), and numerous articles in professional and literary journals.

ANNOUNCEMENT

The New York Public Library has a number of duplicate sets of the *Catalogue of the Astor Library*, nine volumes, unbound, from 1857 to 1887, weight nineteen pounds. Any library may have one of the sets for the cost of transportation. Requests should be addressed to Robert Lingel, chief of the acquisition division.

THE COVER DESIGN

ÉTIENNE JEHANNOT came to Paris from Anjou. He matriculated at the Sorbonne and, before the year 1493, proceeded to the degree of Master of Arts. But although he was twice nominated by the rector of the university to a benefice, he was unable to obtain a suitable living. Evidently because of this circumstance, he turned his attention to printing; and in 1495 he issued two editions of Isidorus' *De summo bono*. As befitted one of his profession and training, he confined himself to the printing of sober theology, Books of Hours, and similar religious works, with the addition of a few school books. In all, he produced about thirty editions, a number

which shows great activity on the part of Jehannot, for he had died or retired by 1498. The quality of his work, however, did not suffer from haste; his typography was excellent, and the woodcuts of his Books of Hours are remarkable for their animation and originality of treatment. Jehannot was closely connected with his neighbor, Pierre Le Dru, who took over his business after his death or retirement.

Jehannot's first mark, which is reproduced on the cover, is a shield displaying three cockleshells (the emblems of St. James of Compostella), supported by the Archangel Michael and St. James.

EDWIN ELIOTT WILLOUGHBY

COLLEGE OF WILLIAM AND MARY

REVIEWS

Politik der Bücherei. Eine Grundlegung ihrer Aufgaben im Kulturleben der Gegenwart zugleich ein Handbuch für den Fachunterricht. By PAUL LADEWIG. Leipzig: Alfred Lorentz, 1934. Pp. xi+491. Rm. 12.

This, the third edition of Dr. Ladewig's *Politik*, may be regarded as supplementing, but not necessarily superseding, the work of previous German librarians, among them Petzholdt, Dziatzko, Graesel, Gardthausen, and Milkau. Ladewig differs from them, however, in emphasizing general public library rather than academic library practice, and in this respect he may be said to be an advocate of American methods in distinction to the Continental. His whole work, indeed, is a tribute to American librarianship (it is co-dedicated to Herbert Putnam), so imbued is the author by American ideals. This is well brought out by such chapters as that on "Library schools," which is wholly concerned with transatlantic institutions and system. It would seem, however, that he is too impressed by what we may call the "prospectus advantages" of this kind of instruction and not sufficiently attentive to the desirable qualifications and preparatory education of the future librarian. This observation holds good, I think, of his chapter on "Personnel and service," in which he advocates the regimentation of the staff and the standardization of duties. To this end, he tabulates as a model the organization current in the larger American libraries. So with the chapter on "Library apparatus," dealing with library accessories and aids, the keynote is again standardization (*Normalisierung*).

One cannot, however, criticize such a sound, practical handbook of library routine for its recommendations of efficiency. From this point of view, all practicing librarians will find an abundance of suggestive discussion and stimulating ideas on the administration of their library, while the student for the B.L.S. degree could not have a better textbook—providing his German vocabulary is large enough. It may be regretted, however, that some of the perennial problems of library theory are not within the scope of a book whose limits are the three R's of librarianship. We could wish that such an authority as Dr. Ladewig had discussed more fully the social objectives of the public library; the question of the relation of the general demand for reading to the particular sources of supply; and, arising from this, the theory of book selection in its sociological rather than its logical aspects. These factors, where relevant, are bound, of course, to be touched on in the course of a five-hundred-page book. The introductory chapter, "Was das Buch will und soll," raises one's expectations, but the treatment of the knotty problem of public library

ethics seems more rhetorical than scientific. Hence such admissible (but somehow unsatisfactory) generalizations as that it is the function of the library to uplift men in the interests of good citizenship; that the librarian himself should have the same breadth of vision in his field as the statesman in his; that books are written for men and not for libraries; that the educational purpose of the library should be uppermost, though not obtrusive. *Wie viele Vacter sind imstande, ihren Kindern auf dem Spaziergange auch nur den Namen des Bluemchens am Wege zu nennen?* Questions of this kind seem indicative of a sentimental approach, and are not instrumental in solving fundamental problems. So in his discussion of trash (*Schundliteratur*), his conclusions are inescapable, but his suggestions too indeterminate—or, perhaps, too idealistic—for a practical handbook. Notwithstanding the excellent literary definition:

... das gute Buch auch in seinen aufreizendsten Momenten einmal zum Verweilen und Nachdenken zwingt, während der Schundroman ein Nachdenken ueber seinen Inhalt unmöglich, ja, selbst zur Groteske machen wuerde. Das Schundbuch kann mit einem Wort gefasst werden: Die Jagd nach der Gedankenlosigkeit.

Notwithstanding such a definition, the right of *Schundliteratur* to be included in the public library is still left unsettled.

Much more satisfactory is his discussion of popularization, which he bases on the assumption that broad scientific needs are best met by general public libraries. His statement that no educational institution can effectively function without the co-operation of the public library indicates that he is not using the term "popular" in any loose sense. He advocates interloaning from learned and reference libraries through a central library—not, however, an ordinary public library, but a *wissenschaftlich, reichversehene Buecherei*, an obvious example of which is the English National Central Library, of which no mention is made.

It would be ungracious to challenge Dr. Ladewig with any "extra-curricular" problems, inasmuch as he confines his study to present-day library practice; for he has done a most thorough piece of work, synthesizing the innumerable analyses of public library policy and presenting the result within one compendious volume.

J. H. WELLARD

GRADUATE LIBRARY SCHOOL
UNIVERSITY OF CHICAGO

Bok og Bibliothek. Tidsskrift for Bokvenner, Bibliotheker og Folkeakademier (Tidligere For Folkeoplysning). Oslo: Arne Kildal, Bibliotekkskonsulent. Vol. I, No. 1 (February, 1934).

As indicated by the title, the foregoing periodical continues the one issued by the Department of Church and Education since 1907, under the editorial supervision of Karl Fischer, its library expert for over twenty-seven years

and a pioneer in the public library movement of Norway. The new editor, Arne Kildal, is well known to American librarians. He graduated from the New York State Library School twenty-seven years ago and subsequently held positions at Yale and the Library of Congress. He returned to his native land to become the librarian of its second largest public library, that of Bergen, which he reorganized and developed until it had become one of the outstanding libraries of northern Europe.

Under its new title the periodical will aim to interest also the librarians of the learned institutions, booklovers, and the more general publishing and book interests. As heretofore, the editor-in-chief will be the library expert of the Department of Church and Education. He will be assisted by an advisory committee appointed by the Department and the Norwegian Library Association. The periodical will appear in six numbers yearly, forming a volume of about 360 pages. The contents of the first number are: "Fiction and poetry, 1933," by Eugenia Kielland; "Book production in New-Norwegian (Landsmaal), 1933," by O. Dalgard; "The Scientific libraries of Norway today," by R. Omang; "Printed catalog cards," by H. J. Hjartøy; statistics, library news, and reviews.

J. C. M. HANSON

SISTER BAY, WISCONSIN

Library literature, 1921-1932. A supplement to Cannons' Bibliography of library economy, 1876-1920. Compiled by the JUNIOR MEMBERS ROUND TABLE OF THE AMERICAN LIBRARY ASSOCIATION, under the editorship of LUCILE M. MORSCH. Chicago: American Library Association, 1934. Pp. xii+430. \$10.00.

This index to the literature of librarianship fills a need of which every person who has occasion to use such material has been conscious. It has only one outstanding fault. This deficiency is typical of the attitude of American librarianship toward the remainder of the world.

At the beginning of the editor's Introduction, the following sentence appears: "The title *Library literature, 1921-1932* is intended to suggest in general the scope of the work, which contains references to the whole twelve years' output of articles and books which relate to library work." And, later in the paragraph, this phrase occurs: "The list is limited to periodicals in English. . . ."

It is unfortunately true that all of the books and articles which are important to the science of librarianship, and which have been written during the period covered by this index, have not been written in English. Only two inferences from the failure to include material in foreign languages can be drawn. Either the editors of the present work negate the importance of such literature to American librarians, or they realize, what is perhaps a fact, that Amer-

ican librarians are generally unable to read with any profit a language other than their own.

It appears to the reviewer that the failure to include foreign material in the present index is serious indeed. The necessity for co-operation and exchange in thought and ideas between American and foreign librarians has been realized. American librarianship can no longer be self-sufficient. It is true that Europe has learned much from us, particularly in matters technical. But in larger aspects of librarianship—in the fields of adult education and reading in particular—the activities of foreign libraries must be observed, studied, and considered by American librarians.

American librarianship may be said to be suffering from indigestion brought about by too hastily consuming large amounts of technique. We need roughage, in the form of more general treatments of larger problems than the question of corporate entries and decimal numbers on L.C. cards. The young librarian in America, unless he be an exceptional person, gains from his library-school training and his experience at conferences a perspective on the entire field of librarianship which tends to limit his thinking to problems concerning the minutiae of technical operations. This is quite evident from an examination of problems proposed for study by candidates for admission to the Graduate Library School of the University of Chicago.

Except for this one large limitation, the present index is eminently satisfactory. The alphabetical arrangement, which displaces the classified arrangement of *Cannons'*, is certainly an improvement and makes the book more usable. The inclusion of books and pamphlets which appeared separately is a valuable addition.

It might be possible to find fault with the subject headings and their divisions in certain cases. But such criticism would have little justification other than individual opinion. The material is generally to be found where most workers in the field would expect to find it. The index will serve as a satisfactory key to the material indexed. It is unfortunate that the limitation of language was allowed to operate to the limitation of its possible usefulness.

WILLIAM M. RANDALL

GRADUATE LIBRARY SCHOOL
UNIVERSITY OF CHICAGO

Colon classification. By S. R. RANGANATHAN. ("Madras Library Association publication series," No. 3.) Madras: Madras Library Association; London: Goldston, 1933. Pp. xiv+128, 136, 106. Three parts in one volume. 15s.

The author, librarian of Madras University and secretary to the Madras Library Association, reveals in his recent work the same evidence of broad scholarship and of unusual professional equipment as in his earlier book on

administration, *The Five laws of library science*, which is another volume of the "Madras Library Association publication series." He expresses in his lately published scheme of classification an intellectual debt to his former master, Mr. W. C. Berwick Sayers, and to more than a dozen other specialists who advised him in constructing the classification in their respective subjects. He claims for the scheme ten years of successful use in the Madras University Library.

He states in the Introduction that his aim is to give, through certain standard unit schedules, a working manual for classifying books. The at least partial aim of the Dewey Decimal Classification and of the Library of Congress Classification to provide a ready-made class number for most topics, he rejects. Through this restricted aim, the scheme has acquired an extraordinary mnemonic quality. Three features are stressed—the great minuteness of the classification in most of the subjects, the elasticity due to the decimal factor in notation, and the inclusiveness or hospitality of the scheme, resulting from the application of the following eight devices: colon, geographical, chronological, favored category, classic, subject, alphabetic, and bias-number.

The work consists of three parts which will ordinarily be bound separately: "Rules of classification," "Schedules," and "Index." Part I sets forth with admirable concentration the principles which dominate the scheme. For enthusiastic students and experienced classifiers in the United States this is the most valuable portion of the book. It is an important contribution to the literature dealing with the science of classification. The thirty-six chapters treat of the call number, class number, book number, subject digit, common subdivisions, geographical divisions, language divisions, eight devices, and the twenty-seven main divisions of knowledge, all except the generalia introduced by capital letters. A short index closes Part I. One notes that the twenty-seven subject divisions fall into three broad groups. The divisions A to M constitute the group of pure and applied sciences. The divisions U to Z are the subjects which treat of man in relation to society. The other divisions deal with the other humanistic subjects. Among the divisions of each group "there is some sort of evolutionary relation."

Part II, including the illustrative classic-device tables, indicates how condensed are many of the schedules. Some of them, however, are printed in double columns and are equal in length to the same subject in the D.C., for example, mathematics. Certain large, scholarly American libraries will be interested in the Indological schedules. There is a promise of inclusion in the next edition of similar detailed schedules for other oriental subjects.

Part III, "Index to the schedules," is divided into two sections. The first section, furnished with a very necessary explanatory introduction, is an index to the terms used in the schedules. This term index, of course, gives in no way the superior service of a relative subject index. The second section indexes the title and author entries of all the workers, chiefly Indological, "whose class

numbers have been worked out by the classic device and given in the illustrative schedules of Part II."

The class number may be composed of four symbols or species: the capital letters, the arabic numerals, the small letters, and the colon. One illustration in literature may serve to show the application of the various unit-subject schedules and divisions. The life of a Shakespearean critic, born in 1857, has a class number 0:2J64:9wM57. The 0 represents literature; the omission of the language number points out that the favored language, English, is used; the colon is put after the language number or 0; 2 represents the form number, drama; J64 represents the author number; constructed by the chronological device, J stands for the sixteenth century and 64 for the year of Shakespeare's birth; colon 9, a modified common subdivision, represents criticism; w, a common subdivision, represents biography, M57 represents the biographer's number; constructed by the chronological device, M stands for the nineteenth century, and 57 is the year of the birth of the critic.

In discussing the book number, the author suggests that in certain systems the initial of the writer's surname supplies a part of the book number, but he maintains that the date of publication of the book more often than the author determines the value of the book except in the case of literature. The book number may consist of one or more of five parts, for example, the language number, which is a numeral; the date number, which begins with a capital letter and is followed by numerals; the accession part of the book number, with the formula *n-l*, the volume number, composed of a period and a numeral; and the supplement number, composed of a dash and a numeral.

The use of the colon is interesting. In literature the special subdivisions are based on four characteristics: language, form, author, and work. The colon, compared to the connecting ligaments of the skeleton, is put after the language number and the author number. "The colon device consists in separating by a colon, the parts of a class number which relate to the different characteristics forming the basis of classification. . . . The magnitude of the colon lies between 0 and 1." The great flexibility is due to the fact that at as many points as there are colons, the class number is capable of expansion as well as at the right end.

Another noteworthy device is the bias number. It is applied to works in one class which are composed with a special bias to some other class. The basic number is amplified by the digit 0, followed by the bias number. A textbook of mathematics for the use of engineers will be distinguished from a general textbook by adding OD to B, that is BOD.

By the classifiers in the United States who have a preference for the D.C., the colon classification will be criticized as too complex in its notation and its construction. By the classifiers using the L.C., which is the composite result of a scientific approach of many disciplined workers, the colon classification,

in respect to its theoretical approach, its too chronological emphasis, its literary form divisions, will, in spite of its high standards of consistency and comprehensiveness, be ranked as inferior.

SISTER MARY REPARATA, O.P.

ROSARY COLLEGE LIBRARY
RIVER FOREST, ILLINOIS

Foreign languages for the use of printers and translators. Supplement to the Style manual of the United States Government Printing Office. Washington: United States Government Printing Office, 1934. Pp. vi+166. 75 cents.

The Government Printing Office, with the assistance of various members of the staff of the Library of Congress and others, has produced a manual of foreign languages which will be of great value and assistance to librarians, and in particular to catalogers and classifiers.

The manual contains transliteration tables and useful information for more than seventy languages. The information included consists of rules for syllabication, lists of the cardinal and ordinal numbers, the names of months, days, and seasons, and other divisions of time, and lists of articles and other words to be disregarded in filing. There are also included short paragraphs which give information concerning the language family, and the locus of the speech.

A table of diacritical marks used in various languages begins on page 5. Important also to the cataloger are the lists of abbreviations which are supplied for many of the more important languages.

With this manual in hand, the cataloger will have little difficulty in transliterating and determining proper names and entries for any of the languages included. It is a book for which a need has long been felt, a need which was only partially filled by the transliteration cards issued by the Library of Congress.

WILLIAM M. RANDALL

GRADUATE LIBRARY SCHOOL
UNIVERSITY OF CHICAGO

An American bookshelf, 1755. By LAWRENCE C. WROTH. ("Publications of the Rosenbach Fellowship in Bibliography," III.) Philadelphia: University of Pennsylvania Press; London: H. Milford, 1934. Pp. ix+191. \$2.50.

It has been observed¹ that full chronological enumeration and analysis of the output of the press would reveal historical evolution in all its lights and

¹ E. W. Hulme, *Statistical bibliography in relation to the growth of modern civilization* . . . (London, 1923).

shadows. The recent short-lived vogue of technocracy, for instance, will appear in retrospect as a bibliographical bulge, of sudden appearance and sudden end.

The approach of Mr. Wroth to mid-eighteenth-century American thought is an effective application of this general thesis. "The history of a period and its writings are one," is his definition of the principle. It is true that the actual reading done in a particular period may be measured by analyzing the contents of book collections, public and private, and by contemporary accounts of reading interests, but the study of mental processes in terms of the press is a very neat and reasonable method.

In "trying to learn the fabric of our forefathers' consciousness in this period," the author unfolds the full panorama of war and peace in 1755. Because "then, as always, books were written and printed only in response to public interest," the literature arising from the peril of the French, and especially of Indians, bulks large. And the author reiterates his strong appreciation of the racy, indigenous quality that gives the Indian treaties literary uniqueness.

Beyond the fears of war and aspirations to union, the colonial mind of 1755 was passing through a period of rationalization and emancipation, religiously and intellectually. New experimental attitudes were emerging in writings on earthquakes and comets as alternatives to the old ideas of divine displeasure. An important increase in the secular point of view was seen in the secure establishment of Columbia University in New York and the University of Pennsylvania in Philadelphia. Finally, beyond the pale of settlement, that frontier, of whose later history we have recently heard so much, challenging the spirit of adventure, important economically and politically, was beginning to impinge on the American mind and crystallize in travel books and map-lore.

The particular virtue of this book is, of course, the erudition of its bibliographical descriptions. In long sections of notes appended to each chapter and in extensive appendixes the author makes definitive, scholarly notations. For the satisfaction of critical scholarship in colonial history and for purposes of bibliographical reference, this book should be available in academic institutions and libraries generally.

It is hoped that more books of this caliber, dealing with the origin and sequence of ideas in American life, will materialize as time goes on. The same treatment accorded the two succeeding decades to 1755 might, for instance, help still further to isolate the germ of disaffection that became the American Revolution.

This third lecture on the foundation established at the University of Pennsylvania by A. S. W. Rosenbach to further bibliographical knowledge has the printing and format that make an attractive book.

A. K. BORDEN

UNIVERSITY OF PENNSYLVANIA

Newspaper reference methods. By ROBERT W. DESMOND. Minneapolis: University of Minnesota Press, 1933. Pp. xv+229. \$2.50.

Robert W. Desmond's book, *Newspaper reference methods*, is a practical and useful guide to the administration and organization of newspaper libraries, and one which fills a long-felt need. The history of newspaper reference departments—in old newspaper jargon the "Morgue"—is outlined, classification methods for the arrangement of clippings are illustrated and suggested, and the various services of the newspaper library are enumerated with discussion of improved methods for future development. The value of an efficient reference department with a workable system of assembling and filing clippings which are available for the rapid use of news workers is reviewed. The qualifications of the library staff are given considerable attention in Professor Desmond's book. He says that the modern newspaper cannot deliver first-rate service if the librarian's position is regarded as a berth for some aging member of the newspaper's staff. Worth-while service requires education, training, and experience. "News instinct" is emphasized by Professor Desmond as a necessary qualification for those who are engaged in newspaper reference departments. The lure of the game must ever be present with one who would develop beyond a mere filer; and the changing flux of events must strike a responsive note in the minds of those who are assembling and preserving today's news and tomorrow's history. It is hoped that the next edition of this book will stress the research possibilities of the newspaper library. Of the outstanding newspaper libraries of today there are very few where reliable rapid research can be obtained, reference data that will aid the editors, editorial writers, economists, business and advertising departments.

A very good list of books and magazines considered of value to the newspaper library is appended. The books are divided into lists which suit the small and large reference departments, the first being those "for first purchase" and the second for large newspapers. A check with this list shows that the *Chicago tribune*, which has 15,000 volumes, has 95 per cent of the books in its library. This is a minor part of the reference material which is made up of an immense collection of clippings, reports, and surveys. Books are seldom up to date enough for a newspaper library. The filing of legislative clippings is given attention in Mr. Desmond's book, but perhaps the next edition will devote space to the handling of Congressional bills and reports. Frequently this material is received by the newspaper, used by the political writer, and then tossed in the wastebasket. The newspaper reference department can file this important material for future use of the newspaper.

Newspaper reference methods will serve as a manual and textbook for students in journalism and for those who are organizing or reorganizing newspaper reference departments. It may come to the attention of newspaper editors and publishers who will realize through reading this book that newspaper

reference departments are trying to go forward rapidly to meet the demands and needs of that great American institution, the modern newspaper.

MILDRED A. BURKE

CHICAGO TRIBUNE

Materials and methods of legal research with bibliographical manual. (2d ed., revised and enlarged.) By FREDERICK C. HICKS. Rochester, N.Y.: Lawyer's Co-operative Publishing Co., 1933. Pp. xvi+651.

Skill in the use of libraries is an essential for the student of law, whether he be engaged in practice or academic professions. Methods designed to lighten the burdens of legal research have been devised from time to time, but with them all the attainment of the goal is increasingly difficult. The number of law books has increased faster than even the skeptics of past generations predicted.¹ In addition, the constantly increasing appreciation of the importance of the whole field of human knowledge and activity in legal research has vastly enlarged the scope of investigation of legal problems. Today as never before the comment of Sir Edward Coke that knowledge of none of the arts and sciences can be excluded from the student of law is true.²

For these reasons a book which describes clearly, lucidly, and accurately law libraries and the various tools available for the law student is indispensable. It is not, therefore, surprising that the legal profession welcomed the first edition of Hicks and accorded to it first place among books of its class.³ The second edition is substantially the same as its predecessor. Minor changes have been made here and there as in chapters on case law, treatises, and legal periodicals and search books. The various tables including, *inter alia*, lists of

¹ For a discussion of this topic see an article by Mr. Justice Stone, "Some aspects of the problem of law simplification," *Columbia law review*, XXIII (1923), 319. He estimates that the American reports alone increased from about 180 volumes in 1826 to about 18,500 volumes in 1923, and that at the same rate of progression they would number 1,850,000 volumes in 2023. Another interesting discussion may be found in an address by Sir John Salmond on "The Literature of law," *ibid.*, XX (1922), 197. See also Kent, *Commentaries*, I, 473; Bacon, *De Augmentis*, Aphorism 78 (Vol. V, *Bacon's works*, Spedding, Ellis, and Heath's edition, 104); Justinian, *Corpus juris* (Vol. I, Munro's translation, xxvi). If further evidence is wanted, see any modern law library.

² "Now what arts and sciences are necessary for the knowledge and understanding of these laws; I say, that seeing these laws do limit, bound, and determine all other human law, arts and sciences: I cannot exclude the knowledge of any of them from the professor of these laws; the knowledge of any of them is necessary and profitable. But forasmuch as if a man should spend his whole life in the study of these laws, yet he might still add something to his understanding of them: therefore the Judges of the law in matters of difficulty do use to confer with the learned in that art or science, whose resolution is requisite to the true deciding of the case in question." Coke's *Reports*, III, xxxviii.

³ See reviews in *Harvard law review*, XXXVII (1924), 791; *Law quarterly review*, XL (1924), 253; *Michigan law review*, XXII (1924), 507.

Anglo-American reports, statutes, and periodicals—which were originally excellent—have been amplified and brought up to date. In general, however, the merits of this edition are the merits of the first edition. The strictly new materials are introductory chapters on the nature of law and a chapter on loose-leaf services. The latter is a good description of a type of legal tool which had developed since the publication of the first edition. As to it but one suggestion—minor in character—mention might well have been made of the extension of the scheme to students' casebooks.

The chapters on the nature of law contains an elaborate and laboured statement of the paradox of stability and change in law and the uncertainty which results. In the opinion of the reviewer they do not add to the utility of the book as a guide to legal research. After all, the book is not a treatise on jurisprudence and, though a reference to simple principles of jurisprudence may be relevant, the student should be referred to standard treatises for any detailed treatment of those principles.⁴

Conceding, then, that the book is valuable for the law student, why should it concern librarians? First, because it should be added to the law library. Secondly, because it should be read and mastered by any librarian who deals with law books or gives advice to students investigating legal problems. Mr. Hicks is both a lawyer and a librarian and, as Mr. Justice Loring⁵ once said of John Chipman Gray that he was a better teacher because he was a lawyer and a better lawyer because a teacher, so of Hicks on *Materials and methods of legal research*; it is a better book for lawyers because Mr. Hicks is a librarian and for librarians because Mr. Hicks is a lawyer.

SHELDON TEFFT

UNIVERSITY OF CHICAGO

Business directories: a key to their use. Compiled by MARIAN C. MANLEY under the direction of BEATRICE WINSER. Newark, N.J.: The Public Library, 1934. Pp. 63. \$2.00.

Business and trade dictionaries. A classified guide to the sources of business terminology and definitions. Compiled by SPECIAL LIBRARIES ASSOCIATION, SPECIAL COMMITTEE, ALMA C. MITCHELL, Chairman. New York: Special Libraries Association, 1934. Pp. 39. \$1.50.

There has long been great need for these two publications. The excellent *Mailing list directory* (1924) is, although still useful, out of date, and there has

⁴ For representative treatises on jurisprudence see Mr. Hicks's list, Appendix II, p. 289. The reader should note that, though Mr. Hicks refers to Hibbert's *Jurisprudence* on p. 124, he has not included it in Appendix II. For a justification of this omission see the review of Hibbert, *Law quarterly review*, XLVIII (1932), 608.

⁵ *Massachusetts law quarterly*, I (February 1916), 34.

not been a useful list of business and trade dictionaries since that in *Special libraries* in 1923 and 1925. It is somewhat of a disappointment, therefore, to go through these new guides, because of many omissions in both of them and the evident lack of consistency as to what has been included and what has been left out. Even if the word "important" is interpreted in its broadest sense, including the local and geographic aspect, too many important titles have been overlooked. One is often reminded of our famous "speed" that is an enemy of carefulness and thoroughness.

Why have all the industrial or manufacturers' directories, issued by the different states or by local chambers of commerce, been left out of *Business directories*? At least the more important, such as the *Industrial directory of New Jersey* (1931), *Directory of New York manufactures, 1932* (Vol. I-II), *List of foreign and domestic corporations in Illinois* (1933), and the Pennsylvania and Ohio manufactures directories, ought to have been included. Why include the *List of Negro hotels* and omit most of the other government directories, either printed or in mimeographed form? An index to them is given in Jerome K. Wilcox's *United States reference publications, 1931*, pp. 89-96, and *Supplement, 1932*, pp. 130-35.

Let us take the section "Libraries," where we find the *Aslib directory* and the *Special libraries directory of the New York metropolitan district* listed—but that immediately leads one to ask the question: Why not also include the *Minerva Jahrbuch* and its supplementary handbook on libraries (both of which are international in scope), and why not include the library directories for the Chicago, Washington, Philadelphia, and San Francisco areas?

It is possible that directories in the German language are excluded, although the prefaces do not indicate it. Otherwise, *Handbuch der internationalen Petroleum-Industrie* (1934)—which is far better than the French and British ones—and *Die chemische Industrie des Deutschen Reiches* should have been included. There are several special "who's who" in "B.D." but the following cannot be found: *Who's who in finance, banking and insurance* (with a complete geographical index), and *Who's who in railroading—U.S.—Canada—Mexico—Cuba*. Under "Farming, food and allied industries" might also have been listed: *Farm implement news. Tractor field book with power farm equipment specifications* (1928), and *Granges in U.S.*, by William Grant Wilson (1929). Sheldon's *Jobbing trade and city offices* (1931), and Dockham's *Glove and mitten manufacturers and jobbers* (7th ed., 1927) could have been considered worthy of inclusion in the section "Clothing, housefurnishing and allied industries," even if not of greatest importance. Among the items under "Building and allied industries" I miss *Directory of cement, gypsum, lime, sand, gravel and crushed stone plants* (22d ed. 1928); *Abbey's Register and year-book. Western lumber industry* (1928); and United States Bureau of Foreign and domestic Commerce, *Directory of exporters of American lumber* (1929). Under "Marketing," section "Fairs," I would have listed International Cham-

ber of Commerce, *Fairs and exhibitions*, issued at regular intervals, instead of the government publication. In "Transportation, communication and other public utilities" the following titles should not have been excluded: International Bureau of the Telegraph Union, *List of aircraft stations* (Berne, 1929), with supplements, and its *List of broadcasting stations* (Berne, 1929), also with supplements.

Under "Retail stores" I miss National Association of Real Estate Boards, Brokers Division, *Wearing apparel—store chains* (December, 1931), *Food and house furnishings—store chains* (February, 1932), and *Service store chains* (July, 1932); and it might be suggested that *House organs published in the U. S. and Canada*, supplement to *D.M.A.A. Bulletin*, X (March 24, 1930), should have been listed, since it only costs \$1.00. And why omit Twentieth Century Foundation's *American foundations and their fields* (1931) when the Russell Sage Foundation's *List* is included? And, finally, under "Associations" the following two items might have been entered: *Handbook of institutions for the study of international relations*, by the League of Nation's Institute for International Co-operation, 1929, and *A Directory of societies and organizations in Great Britain concerned with the study of international affairs* by the Royal Institute of International Affairs (Information Service on International Affairs, 1929).

Of course, it can always be open to discussion whether the titles cited are "important" ones, but practical experience seems to support the view "when in doubt, include rather than exclude."

The arrangement and the indexes are good.

In spite of the shortcomings of this handbook, its usefulness cannot be contested, and it will be a welcome addition to many reference collections throughout the country.

Unfortunately, *Business and trade dictionaries* has the same lack of clear demarcation as to inclusions and exclusions. Bearing in mind the eliminations outlined in the Preface and going through this pamphlet with an appreciation of difficulties involved, one cannot help being astonished at the numerous omissions. An acoustics glossary is found under "Construction industry," and yet the acoustical glossaries in the *Journal of the Acoustical Society of America*, II (January, 1931), 311-24, and in V. O. Knudsen's *Architectural acoustics* (1932), pp. 595-602, are not. A list of aeronautical terms is to be found in United States Bureau of Labor Statistics, *Wages and hours in the manufacturing of airplanes* (1929), pp. 50-53. The same series, "Wages and hours of labor," has also in its various bulletins glossaries pertaining to the automobile, baking, box-board, brick, cement, cigarette manufacturing, dyeing, filling stations, foundry, furniture, hosiery, leather, lumber, machine-shop, meat-packing, mining, paper and pulp, silk and rayon, textile, tire, underwear, and yarn industries. Citations to other omissions follow. W. L. Prouty's *Appraisers and assessors' manual* (1930) has appraising terms on pp.

293-96 and an architectural glossary on pp. 36-46. The S.A.E. *Handbook* (1931) has a list of automobile terms on pp. 609-42, and T. Corkhill's *Brickwork, concrete and masonry*, Vol. I (1930), contains some brickwork terms on pp. 222-24.

To the entries pertaining to abbreviations of business terms (Part I) might be added R. H. Montgomery's list in his *Financial handbook* (1925), pp. 1675-84, and also M. B. Walsh's in his *Applied office practice* (1931), pp. 349-53. *Fundamentals of canning* (1931), issued by the Quartermaster Corps Subsistence School, has a list of canning terms on pp. 28-32. Besides F. J. Britten's book on watches (1922) mention could have been made of W. J. Milham's *Time and timekeepers* (1923), which has a glossary on pp. 552-58, and of F. Hope-Jones's *Electric clocks* (1931), with its glossary on pp. 249-51. In addition to the dictionaries of coal terms could be mentioned United States Bureau of Foreign and Domestic Commerce, *The Coal industry of the world* (1930), which has a list of trade terms on pp. 317-20. The list of commercial terms (English, French, German, Spanish, Italian, Norwegian) in Lloyd's *Calendar* (1930), pp. 743-61, could find a place in Part II, and a glossary of compressed-air terms is just as important as a glossary for hydraulics and irrigation; that is the reason for including W. L. Saunder's *Compressed air data* (1927) with such a list on pp. 9-15. Concrete terms can be found in Arrol's *Reinforced concrete reference book* (1930), pp. 113-18, and when it comes to the cotton trade several additions could be made, e.g., United States Bureau of Forestry and Domestic Commerce, Textile Division, *Cotton fabrics and their uses* (1930), *Glossary of raw cotton trade terms* (1928), issued by India, Department of Commercial Intelligence and Statistics; and *Glossary of terms relating to hand-made cotton fabrics*, supplement to the *Indian trade journal*, July 3, 1930.

When we come to electrical terms there are several glossaries that could be included and meet with approval, e.g., British Engineering Standards Association, *British standard glossary of terms used in electrical engineering* (1926); United States Foreign and Domestic Commerce, Electrical Division, *Glossary of electrical terms* (1925), and the list in National Electric Light Association, *Overhead systems reference book* (1927), pp. 1-21; and George McDonald's *Electrical dictionary* (1933). Engineering trade terms are to be found in H. R. Kempe's *Engineer's year-book* (1926), pp. 2913-98. Only one title pertaining to the fertilizer trade seems to be listed, but here are two suggestions: H. C. Moore, *A Dictionary of fertilizer materials* (1927); and the fertilizer terms found in *American fertilizer handbook* (1930), pp. 61-85. Under "Food industry" the following publication should have been found: Kansas State College of Agriculture and Applied Science, Department of Food Economics, *A Dictionary of culinary and related terms* (1933). Room may also have been provided for the glossary of forest products in United States Forest Products Laboratory, Technical Note, No. 240, October, 1932. The National

Association of the Fur Industry, *Year book* (1925), has some fur terms on pp. 39-47.

To the entries under "Furniture industry" might have been added the furniture terms in Johnson-Sironen's *Manual of the furniture arts and crafts* (1928), pp. 783-840. Why not include E. H. Kraus's *Gems and gem materials* (1931) under "Jewelry industry," since it has a glossary on pp. 129-219? And why overlook such a useful dictionary as F. A. Lent, *Trade names of marbles, limestones, sandstones, granites and other building stones* (1925)? Among the entries under "Insurance" I do not find the following: B. C. Hoskins, *An Insurance lexicon* (1927); the glossary in H. R. Hayden, *Cyclopedia of insurance in the United States* (1932), pp. 503-98; the list of marine insurance terms in the *Exporters encyclopedia* (1931), pp. 1582-88; and the terms used in unemployment insurance and peculiarly enough found in the *Congressional digest*, August-September, 1931, pp. 199, 223. *Melliand textile monthly* is cited once, but might have been quoted twice, inasmuch as it also has a glossary of terms used in knitting (warp) in I, 1177-84, 1343-50, 1473-78 and in II, 804-8, 938-42. The *Encyclopedia Americana* contains many, but rather short, lists of trade terms; the one pertaining to leather and shoe trade technical terms (in xvii [1932], 154-64) might be cited for inclusion. Worthy of inclusion is Boot and Shoe Recorder's *The Shoe and leather lexicon* (6th rev. ed., 1930).

There are several more dictionaries of mining terms than those listed; some of the more important are: E. Halse, *A Dictionary of Spanish, Spanish-American, Portuguese and Portuguese-American mining, metallurgical and allied terms* (1926); the mining terms in A. H. Ricketts, *American mining law* (1931), pp. 1-57; and those in the British *Mining year book* (1931), pp. xlvii-lv. Of omitted glossaries pertaining to the motion picture industry, I would like to call attention to the ones in the *Journal of the Society of Motion Picture Engineers* for November, 1931, pp. 819-38, and in the Society's *Transactions*, XIII, 48-64. The following omission seems hard to explain: Great Britain, Labour Ministry, *A Dictionary of occupational terms* (1927). The Trade Promotion Series, No. 21, of the United States Bureau of Forestry and Domestic Commerce (1925), is a glossary of paper terms and instructions to exporters. V. A. Kalichevsky's *Chemical refining of petroleum* (1933), which has been left out, has a glossary of petroleum terms on pages 390-412. The *Photo-miniature*, No. 203 (December, 1930), is a "Concise chemical dictionary for photographers," which could have been listed; and so could the glossary of welding terms in National Association of Heating and Piping Contractors, *Standard manual on pipe welding* (1931), pp. 260-64. Very useful is a list of refrigerating terms in *The Refrigerating data book and catalog* (1932-33), pp. 416-26.

Under "Export trade" one does not find J. A. Dunnage, *Shipping terms and phrases* (1925). A good glossary of silk terms can be found in J. Schober's *Silk and the silk industry* (1930), pp. 251-78, 355-64. There is a 1930 edition of F. W. Dencer's *Detailing and fabricating structural steel* that has a list of

structural shop terms on pages 420-32. The "Textile industry" is well represented, and it is hardly necessary to call attention to the *Textile recorder year book* (1931), that has lists pertaining to cotton (pp. 311-21), jute (pp. 349-52), linen (pp. 368-72), silk (pp. 361-67), and wool (pp. 329-48); and to the *Wool year book* (1931), which has a glossary of wool terms on pages 666-705. Last but not least is H. G. Brady's *Transportation glossary* (1929). Besides the omissions listed, *Business and trade dictionaries* has too broad subject headings, e.g., "Construction industry" and "Engineering," and it lacks an author and title index. In spite of these facts it must be admitted that there is nothing up-to-date which lists business and trade dictionaries. Therefore, its usefulness to libraries in general will be considerable.

H. E. MOSE

THE JOHN CRERAR LIBRARY

Guides to business facts and figures. An indexed and descriptive list emphasizing the less known business reference sources. Compiled by SPECIAL LIBRARIES ASSOCIATION. New York: Special Libraries Association, 1933. Pp. 49. \$1.50.

In a very comprehensive foreword the compilers have stated the purpose. It

... aims to serve as a key to current data and as a buying list for individual requirements. It provides for the business man a selective guide to a wide range of publications relating to his day's work and points the way to countless facts that have a vital bearing on current business conditions.

Divided into two general sections, the first part lists the sources of information, the second the indexes. The publications are listed alphabetically under seven headings: "General indexes and lists," "Statistical sources of information," "Guides to financial information," "Income, wages and cost of living," etc. Each entry has a descriptive note which outlines the type of information found and the price and the address of the publisher. The two indexes, author and title, and subject, are a most valuable feature which makes this guide an efficient reference tool. The index by author and title indicates by means of starred entries certain magazines which provide annual statistical summaries. The subject index "brings out in considerable detail the information available in the publication described."

The urge to comment on the opportunity and the trend in the library profession which the members of the Special Library Association are pointing out is too strong to resist. Their publications, as a rule, have an air of "We mean business" in both senses. We find no impression of amateurishness and wasted effort so often found in library publications. These librarians note a definite need for an instrument to increase their efficiency in a special field and proceed to make one. The impression is given that these publications are

designed for a specific purpose and not for the sake of publishing something or of printing names on title-pages. Economic crises bring out the fact that libraries are regarded by some as superfluous. This is true not so much in the special-library field, however (because the special library would have been eliminated at the first indication by a business of needlessness), as in the general public library. Any special library still in existence has proved its value. It is hoped that the attitude and feeling that libraries are absolutely indispensable, instead of being considered somewhat costly luxuries, will become universally prevalent. A library must justify its existence by the value of its service. The Special Libraries Association through its group of able librarians is showing the way.

RANDALL FRENCH

THE JOHN CRERAR LIBRARY

Authors today and yesterday, a companion volume to Living authors.

Edited by STANLEY J. KUNITZ; HOWARD HAYCRAFT, managing editor, WILBUR C. HADDEN, editorial assistant. New York: H. W. Wilson Co., 1933. Pp. vii + 726. \$5.00.

This volume includes short biographies of 320 American, English, and European authors whose chief works have appeared since 1900. It is a supplementary volume to *Living authors*, published in 1931, and none of the names which appeared in *Living authors* are found in this volume. *Living authors*, as the first volume of its kind, included the most popular new authors of today, and thus this left for the new volume only the older, more established authors about whom it is not difficult to find material and the less important new writers. For this reason this new volume will probably not have the same popularity and use which the first volume has had.

The biographies are much longer than those in *Living authors*, varying in length from two to five pages. Each account is accompanied by a photograph or drawing of the author and a bibliography of the works by and about the author. This latter feature is an addition of some importance. The information is accurate, since the editors appear to have spared no effort in obtaining first-hand information from all the authors who are living. The interesting details which are given in full in the words of the authors themselves make entertaining reading.

Among the most useful biographies are those of foreign authors whose works have been translated into English, such as the accounts of "Colette," Ernst Toller, Martínez Sierra, "Hans Fallada." It is difficult to find other accounts in English about these authors. We wish that such well-known authors as Henry James, Thomas Hardy, and Kate Douglas Wiggin might have been omitted and more of the recent foreign authors included. The other useful type of biography included is that of the young, little-known writers

about whom almost nothing has been written elsewhere, such as Robert Hillyer, A. J. Cronin, S. G. Endore, and Kay Boyle.

The pronunciation of the more difficult names which is found at the bottom of the pages is a valuable feature.

MARGARET I. SMITH

UNIVERSITY OF MICHIGAN

The League yearbook, 1933. Second annual edition. Edited by JUDITH JACKSON and STEPHEN KING-HALL. New York: Macmillan, 1933. \$4.50.

If the faith and hope of many in the League of Nations as a world-force have been badly shaken these past two years, there is greater need for its effective and positive functioning than ever, for the Four Horsemen are riding the roads of the world full tilt. The growth of international co-operation in other than political fields, its wide extent and power, are impressively attested by the survey of existing organizations and their recent activities, given in the *League yearbook*, first issued in 1932.

This second issue follows the arrangement and plan of the 1932 issue, with three principal divisions: I, charters, functions, organizations, procedures of the various organs and commissions of the League, as well as international bureaus and institutes co-ordinated with it; II, proceedings of the League in the past year; III, appendixes describing special procedure, lists of members of organs covered in Part I, and bibliographies.

The first and the third parts repeat with minor corrections and revisions the material given in the 1932 *Yearbook*, which had the same editors. Omitted are the labor clauses in the Versailles Treaty, council reports on the right of investigations under military, naval, and air clauses of the peace treaties; added is a chapter on minorities and a short section on League of Nations societies.

Part II, the proceedings of the League and other co-ordinated international organizations, is entirely new material and covers the activities of 1932-33 in a more condensed and more readable manner. The first *Yearbook* gave 188 pages to chronological summaries in great detail, based directly on speeches and official action, for the sessions of 1931-32 which it covered. This second volume gives 39 pages to a reportorial account of the high points of the year 1932-33 by C. A. Macartney; it is very well done, reflecting something of the spirit of the conferences and discussions and giving attention to the day-by-day work of the bureaus, as well as to the plenary sessions.

The bibliographies, pages 392 to 455, bring up to date by the insertion of new publications the selected list of important League publications and annotated list of the principal works on the League appearing in the first issue.

The international "Who's who" promised in the Introduction to the first *Yearbook* failed to appear. The absence of personal names in the Index is

even more regrettable, and this impersonality in so excellent a record of the League's year should be remedied next time. There is still much material in Part I which should be condensed or dropped in favor of new material or a lower price, references to previous issues replacing the full statements.

Dr. Levermore's *Yearbook*, published for the first few years, the Yearbooks issued by the World Peace Foundation, together covering 1920 to 1928, are continued in improved form by this publication and give us in English an excellent substitute for Ottik's *Annuaire de la Société des Nations*, published since 1927. It is to be hoped that it will be sufficiently in demand for reference purposes, as it should be, to insure its continuance.

DONALD B. GILCHRIST

UNIVERSITY OF ROCHESTER

Fifty books about bookmaking. With an Introduction by HELLMUT LEHMANN-HAUPT. New York: Columbia University Press, 1933. Pp. 50. \$1.00.

An effort "devoted to the better appreciation of Printing and the promotion among the teachers of printing of a viewpoint that has hitherto been somewhat neglected" was the purpose of the program prepared for the Twelfth Annual Conference on Printing Education held at Columbia University, New York, in 1933. The University Library at Columbia was asked to prepare an exhibition which would be a contribution to the work of the conference, which would show at the same time something of the regular work of the university in the field of the arts of the book.

In the selection of "fifty books about bookmaking," which would constitute the exhibit, the rare book department of the library, under the direction of Dr. Hellmut Lehmann-Haupt, seems to have kept in mind not only the purpose of the conference, but also has prepared a list of books that should be permanently helpful, not only to teachers and students in the printing schools, but to commercial or book printers, libraries, book clubs, typographical organizations, literary societies, historical societies, and to individuals as well, whether they be book collectors or not.

Of course, as Dr. Lehmann-Haupt says in his Introduction to *Fifty books about bookmaking*, the catalog printed by the Columbia University Press, a full "appreciation of printing cannot be learned in a hurried inspection of the most carefully-arranged exhibit cases," but it would seem that even a hasty examination of the books which were displayed would instil this appreciation into the minds of those who had the opportunity and desire for a more intimate examination and study of the books exhibited, and if the individuals' minds were at all receptive there should be an ambition to go much farther, and to transmit their knowledge and inclination to the students in the approximately 2000 printing schools in the United States.

Simply reading the titles of the books included in this exhibition should arouse the interest, enthusiasm, and ambition of any serious-minded student or individual who desires to know more about the history of writing, lettering, illuminating, bookmaking, papermaking, the invention and progress of printing, of decoration and illustration, and their use and application in bookmaking, bookbinding, and in the commercial activities.

There is much romance in the literature connected with the graphic arts, and when one is inclined in this direction the books included in Dr. Lehmann-Haupt's catalog will be found not only instructive, but fascinating and entrancing.

About thirty of these volumes are in my own library, and I hope to add the missing ones when the opportunity is propitious, since I am more or less familiar with them and their purposes as indicated in this catalog. And this covetousness is not dispelled by the fact that I have many other similar volumes about the history of printing, bookmaking, and the graphic arts generally, all of which have contributed greatly to the enjoyment of many splendidly-designed and printed books, as well as to other pleasures incident to my avocation as well as my vocation.

One could wish for a wider distribution of *Fifty books about bookmaking* and a careful reading of Dr. Lehmann-Haupt's Introduction and his illuminating comments accompanying the title of each book included in the exhibition.

The purpose of the Conference on Education should be kept clearly in mind when considering the nature of the fifty books included in the exhibit and enumerated in the catalog. It was not for the purpose of illustrating the technique of the mechanics of printing, for, as Dr. Lehmann-Haupt says, "it is exactly beyond this line that the real values are to be found," and the awakening of native talent in any individual is a slow process and calls for studious application.

I know of no list of books that is better calculated to encourage and inspire one to a better appreciation of printing and bookmaking, and the graphic arts generally, and a proper study of the contents of these books will tempt one far afield to other and wider fields which he will be better equipped to cultivate through the study of these books.

Not only in the making of books, but in the making of lists of books, there seems to be no end, and yet so far as I know there have been compiled very few lists of books in this classification, or for this particular purpose, and none with which I am familiar have received such careful thought and attention as seems to have been given to this one by Dr. Lehmann-Haupt and his associates of the Columbia University Library.

EDWARD L. STONE

ROANOKE, VIRGINIA

The Cambridge manuscript of John Milton. Lycidas and some of the other poems reproduced from the Collotype facsimile. With a bibliographical note by FRANK A. PATTERSON. ("The Facsimile Text Society," Vol. XVII.) New York: Columbia University Press, 1933. Pp. 20. 60 cents.

Sixteen pages of the Wright *Facsimile of the manuscript of Milton's minor poems* (1899) are here reproduced on eight sheets. The choice of these examples from the forty-seven pages of the original reproduction is explained in Professor Patterson's bibliographical note. Though the pages of the Wright edition are greatly reduced in size, he anticipates that the present form will serve to give students an adequate idea of Milton's handwriting and ways of composition. He has chosen "Lycidas" and also several sonnets that are in two or more draft forms as being most useful for these purposes. "Comus" doubtless was omitted because of its length, and the remaining pages as being much less significant.

This slim book is of interest to printers and to librarians for other reasons than those attracting the notice of students of poetic composition or handwriting. The offset process can be used with fair success on manuscripts and on reproductions of manuscript. These pages are a demonstration of the fact, and consequently have bearing on the problem of disseminating materials for research. Microphotography and motion-picture recording of consecutive pages are two other media available for the same purpose that relieve the printer of his accustomed tasks. All such means for the cheaper distribution of materials that are used by only a few scholars are significant.

Librarians will find fresh questions confronting them as they seek to discover how many of these pages are in Milton's hand, what are the customary titles of these particular sonnets, and why the familiar reference to "minor poems" is missing from the title-page. The last point is easily explained. Professor Patterson long ago showed his dislike for the editor who gave them this apologetic heading as his way to isolate the epics. Once more in this facsimile reprint he shows his general devotion to Milton and his special fondness for the shorter poems.

DAVID H. STEVENS

NEW YORK CITY

A Critical bibliography of the works of Edmund Spenser printed before 1700. By FRANCIS R. JOHNSON. ("Tudor and Stuart Club publications.") Baltimore: Johns Hopkins Press, 1933. Pp. ix+61. \$2.75.

In the compilation of this bibliography of the early editions of Spenser, says Mr. Johnson in the Preface:

... three objects have been kept in mind: first, to give a detailed and accurate bibliographical description of the copy used; second, to note important variants exhibited

by other copies of the same edition, and, where possible, to give a logical explanation of why these variations exist; third, to note any bibliographical peculiarities which would indicate the possibility of textual corrections having been made in some copies, but not in others.

In short, the compiler has attempted a work thoroughly critical and on the basis of sound bibliographical principles.

The collation is based primarily upon an investigation of the copies of the rich Spenser collection of the Tudor and Stuart Club of the Johns Hopkins University, of which club Mr. Johnson is himself a member. Other work, such as the 1579 *Shepherd's calendar* and the 1591 *Daphnida*, not owned by the club, were examined elsewhere. Although no claim is made to a census of all available copies of early Spenser editions, the ownership of the rarer items is indicated for sixty-six libraries and private collections, both in this country and in England.

The collation is exhaustive and in the best bibliographic form. For each title the order is as follows: transcript of the title-page, colophon, format and collation, foliation, errors in foliation, contents (with a note on type), running-titles, entry in *Stationers' register*, copy used, other copies, and notes. Eleven facsimile reproductions of title-pages are included, and each item, from the 1569 *Theatre for worldlings* to the *Prothalamion* of 1596, is listed consecutively from 1 to 18. Number 19 is given to the 1611 to 1617 folio editions of the works, divided into seven sections, each section devoted to a separate title-page. The sections are further divided into groups for each printing. Item twenty is *A View of the state of Ireland* of 1633, and a transcript of the title-page is given both for the Spenser section of this composite work and for the other sections. The 1679 folio editions of the works are grouped under No. 21. No. 22 contains items A to D, being books containing commendatory sonnets by Spenser, such as the *Nenio, or a treatise of nobility* of 1595, *The Historie of George Castriot, surnamed Scanderberg, King of Albanie* of 1596, and two others. *Axiachus*, 1592, which may or may not have been translated by the poet, is item 23 and is followed, on page 61, by "Notes on some Spenser apocrypha," three items in all.

Mr. Johnson's work is characterized by great thoroughness and a love for accuracy and detail truly commendable. The notes, sometimes over two pages long, are always valuable, to the point, and well documented. And they are never opinionated but attempt, in as unbiased a manner as possible, to outline the salient points for each and all major contentions. The work, to say the least, does not fall appreciably short of its original intention and may well be considered not only a valuable aid to the student of Spenseriana but also as a significant contribution to critical bibliography in general.

It has, however, certain shortcomings or omissions. It has no contents and no indexes of any kind. The specialist may not find the absence of these so very grievous in a work which, after all, consists of only sixty-one pages. But

how about the general student? Unless he knows the chronology of Spenser's works much better than is usually the case, he must go through the bibliography page by page until he finds the item of his interest. Somehow, one is led to expect of a bibliography all sorts of aiding devices. The librarian is especially prone to resent the absence of what he considers the most essential parts of a reference work. And what is a bibliography, even a bibliophile bibliography, if not a reference work? It is false to believe, as some do, that an index and contents subtract from the aesthetic value of a book. And, even if it were so, utility rather than beauty should be the first consideration in all works of a purely reference value. It is dangerous to assume too much previous knowledge in the user, for, in proportion as this assumption prevails, the larger usefulness of the work in question decreases. Excepting for these omissions, Mr. Johnson's work leaves hardly anything to be desired and is well deserving of enthusiastic reception.

ARTHUR BERTHOLD

GRADUATE LIBRARY SCHOOL
UNIVERSITY OF CHICAGO

Molders of the American mind: a critical review of the social attitudes of seventeen leaders in American education. By NORMAN WOELFEL.
New York: Columbia University Press, 1933. Pp. xii+304. \$3.00.

This frank and penetrating comment on current social issues and the business of preparing the coming generation to meet them may well have a dual interest for librarians. The author presents it in four sections: (1) some implications of contemporary social change; (2) analysis of the viewpoints of American educators, (3) interpretive criticism of the viewpoints of American educators; (4) suggestive strategic considerations for American educators.

It falls rather naturally, however, into two divisions. Section two presents a purely descriptive analysis of current educational theories which colleagues and critics agree to be dispassionate and judicial. This concise hundred pages may well prove of value as a reference manual for those wanting dependable abstracts of the more important contemporary viewpoints, especially as it is supported by thirty pages of specific bibliographic documentation.

The other three sections of the book carry the author's critical estimate of American society and of the extent to which each educator's philosophy is likely to mold that society constructively. That a good many readers may dispute Mr. Woelfel's judgment as to what is constructive merely heightens the excitement of reading. As Kilpatrick, one of the subjects of his criticism, has remarked, "Not all will accept all that Dr. Woelfel has to say, but if the rest of us will do as good rethinking as he has done, the results will be excellent."

Interest in this fearless discussion of social responsibility need not be restricted to schoolmen alone. Librarians, in the coming period of social and economic flux, may be increasingly constrained to adapt some definite social

platform, and few livelier stimuli toward formulating one are likely to appear, whether the results be in line with Mr. Woelfel's own theories at every point or not.

JEANETTE FOSTER

GRADUATE LIBRARY SCHOOL
UNIVERSITY OF CHICAGO

Columbia books, 1893-1933. A dictionary-catalogue of Columbia University Press publications. Compiled by EDWARD A. NOYES and HENRY M. SILVER, II. New York: Columbia University Press, 1933. \$1.00.

Columbia books, 1893-1933 is a new type of publisher's catalog, excellently compiled by Edward A. Noyes and Henry M. Silver, II, of the Columbia University Press staff. To quote from the Preface by Dr. C. C. Williamson, the director of libraries of Columbia: "It represents a successful attempt to apply to an extensive publisher's list the principles and methods on which the modern library catalogue, the so-called dictionary-catalogue, is based."

It includes all the books Columbia University Press has ever published. Complete bibliographical information and description and evaluation of the contents of the book is given under the author entry. There are also title, subject, and series entries for each book. The date of the first issue of the periodicals is omitted, which is an unfortunate oversight. Many pages are enlivened by small line drawings—illustrating the titles mentioned on the particular page.

The volume has two appendixes: Appendix A is the reproduction of the essay by Hoxie Neal Fairchild, *The Romantic movement as represented in the publications of Columbia University Press*, originally published in a pamphlet of 15 pages in 1932. Appendix B is the essay of Richard B. Morris, *Historiography of America, 1600-1800*, originally published in 1933.

Seasonal announcements will be used three times a year, which will keep the forty-year catalog up to date. A revised edition of *Columbia books* will probably be issued in 1936 that will incorporate the books they have published between 1933 and 1936 with the present list.

This is altogether a most usable and scholarly volume, attractively bound in Columbia blue. It would be well if other university presses followed suit in the preparation of their catalogs—or if, perhaps, all university presses would join and publish a similar joint catalog of all their publications.

WINIFRED VER NOOY

UNIVERSITY OF CHICAGO LIBRARY

Classification. An introductory manual. By MARGARET M. HERDMAN. Chicago: American Library Association, 1934. Pp. 22. 35 cents.

Librarians had hoped that the next book on classification published by the American Library Association would advance our understanding of the problems of book arrangement. The intent of the publishers would seem to be the production of an inexpensive, non-technical treatment for the untrained librarian, but an essay so condensed and unadorned as this will be more misleading than helpful. For the library-school student it might serve as a syllabus, but cannot be compared with or substituted for the chapters in Miss Mann's *Introduction to cataloging and the classification of books*, or the work of Sayers, Richardson, and Bliss. Miss Herdman is a teacher in the library school at the Louisiana State University School of Library Science. Her wide experience as a librarian and teacher in the United States and at the American Library School at Paris should qualify her to write a much more substantial treatise than the present pamphlet.

The author's admiration for the Dewey Classification colors, rather darkly, her treatment of the Cutter and Library of Congress classifications, whose recognized merits are quite neglected. She fails—as most writers on the subject have done—to distinguish between a classification and its attendant notation. In only two incidental phrases is distinction made between the problems of popular and scholarly libraries. Some such modification might well be added to the following statement: "The Dewey Classification is suitable for any sized library up to a million volumes and even larger" (p. 12).

The outline of the work of the Institut International de Bibliographie and its *Repertoire bibliographique universel* is the best short statement in English which the reviewer has seen. The two tables showing "The evolution of the Dewey Classification" and a "Comparative table" of the general outlines of the Dewey, Cutter, and Library of Congress classifications will be useful to teachers. The three principles and eight rules for classifying would prove valuable were fuller explanation given and some warning of the common dangers added for users' guidance. The eighth section, on the history of classification, contains an excellent outline for a treatment of this neglected aspect of the subject, and the three-page bibliography compiled by Miss Isabella K. Rhodes is carefully chosen.

Both thought and style of the *Manual* suffer from editorial pruning which has left the barest skeleton of a potentially valuable work. It is to be hoped that Miss Herdman will write the book for which this essay might serve as a preliminary brief.

JEANEATTE MURPHY

GRADUATE LIBRARY SCHOOL
UNIVERSITY OF CHICAGO

A Descriptive bibliography of the writings of James Fenimore Cooper.

By ROBERT E. SPILLER and PHILIP C. BLACKBURN. New York: R. R. Bowker, 1934. Pp. 260. \$10.00.

A Descriptive bibliography of the writings of James Fenimore Cooper is a distinguished contribution to this field of American literary scholarship. It contains a discriminating introduction of twelve pages plus three more of acknowledgments, a full descriptive list of Cooper's forty-eight books and the somewhat more than forty periodical articles, and is followed by appendixes containing the negotiations by Benjamin W. Coles with English publishers in 1822, an agreement with Henry Colburn for English publications in 1826-28, correspondence relating to continental translation and publication, 1826-44, and correspondence relating to collected editions of Cooper's works, 1850-72. Furthermore, it is supplemented by thirteen pages containing sixteen facsimiles of covers, titles, or pages of author's corrections.

The technical work of the bibliography seems to an innocent bystander to be impeccable, as, for example, with reference to Item 5, *The Pilot*. There is information of its first printing, its publication in New York, its publication in London, a complete descriptive statement of the first American and first English edition, the successive American editions of 1824, 1827, 1829, 1833, 1835, 1836, 1849, and 1852; the successive English editions of 1824, 1831 (with four reprintings), 1839, and 1847; of a French edition in English of 1825, with one reprinting and a subsequent edition of 1833; of editions in French of 1825, 1829, 1830 (reprinted in 1839), 1838, and 1850; of a first German edition in English of 1826 and the second in 1829; of editions in German of 1824, 1827, 1839, 1842 (reprinted in 1844 and 1851); finally, of editions in other languages, including Italian, Spanish, Swedish, Dutch, and Portuguese—the data on this work running to four octavo pages, about the average for the more popular volumes.

Yet the book is somewhat tantalizing. The introduction opens with the statement: "The bibliography of an author is the record of his literary life. Through it we learn on what terms he met his public and what his public, both contemporary and future, thought of his work." Generously interpreted, this could involve two documentations that the book does not contain: first, a statement somewhat in full as to the fiscal returns from the publications, a subject important enough for somewhat casual entries on pages 4-8—with nothing like the fulness of data that is available in accessible correspondence today. One thinks of John Tasker Howard's recent book on Stephen Foster and the full and illuminating details on this point. I am not imposing a subject outside the problem of the editors, but calling attention to the incompleteness or casualness of their treatment of it.

Furthermore, if through the bibliography of an author we learn "on what terms he met his public and what his public, both contemporary and future,

thought of his work," we need to have what this book frankly does not undertake to give—that is, a bibliography of the contemporary reception of his successive publications. There are few authors in connection with whom this particular data is more important, for Cooper's unfortunate controversial habits involved him in differences of opinion with his critics which invaded his prefaces and even his texts, and which colored criticisms of his work just as it colored the nature of the work itself. It is notable that a very heavy proportion of his own contributions to periodicals was of a controversial nature. And of course the long controversy between him and the public—starting from various informal criticisms and culminating in a series of libel suits—is a matter on which full documentation is indispensable before one can learn "on what terms he met his public and what his public . . . thought of his work."

The bibliography as it stands is a valuable instrument for any intensive student of Cooper, but it falls short of the promises of the opening sentences in the preface. The bibliographical data are excellent as far as they go, if we forget these promises; but what they call attention to are matters of prime importance to the student of James Fenimore Cooper.

PERCY H. BOYNTON

UNIVERSITY OF CHICAGO

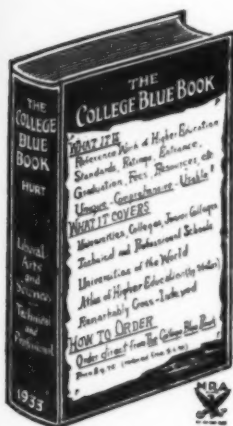
BOOKS RECEIVED

The following publications have been received at the offices of the *Library quarterly*:

- Le Accademie e le Biblioteche d'Italia nel sessennio 1926-27-1931-32.* Relazione A. S. E. IL MINISTRO. Rome: Istituto Poligrafico dello Stato Libreria, 1933. Pp. xxxiii+945.
- Das Arbeitsmaterial des Völkerbundes führer durch seine Veröffentlichungen.* By A. C. v. BREYCHA-VAUTHIER. Foreword by T. P. SEVENSMA. Berlin: Carl Heymann, 1934. Pp. 92.
- Aspects of Athenian democracy.* By ROBERT J. BONNER. ("Sather classical lectures," Vol. XI.) Berkeley: University of California Press, 1934. Pp. 199. \$2.25.
- Bibliography of librarianship. Classified and annotated guide to the library literature of the world (excluding Slavonic and Oriental languages).* Selected by MARGARET BURTON and MARION E. VOSBURGH. London: Library Association, 1934. Pp. 176.
- Books of general interest for today's readers.* Compiled by DORIS HOIT. Chicago: American Library Association; New York: American Association for Adult Education, 1934. Pp. 59. 25 cents.
- Catullus and the traditions of ancient poetry.* By ARTHUR L. WHEELER. ("Sather classical lectures," Vol. IX.) Berkeley: University of California Press, 1934. Pp. 291. \$3.00.
- Fritz Milkau zum Gedächtnis. Ansprachen, Vorträge und Verzeichnis seiner Schriften.* Edited by GUSTAV ABB. Leipzig: Otto Harrassowitz, 1934. Pp. 55.
- Handbook of adult education in the United States, 1934.* Compiled under the auspices of the AMERICAN ASSOCIATION FOR ADULT EDUCATION. New York: American Association for Adult Education, 1934. Pp. 384. \$1.50 to members of the Association; \$2.00 to others.
- The Hundred names. A short introduction to the study of Chinese poetry with illustrative translations.* By HENRY H. HART. Berkeley: University of California Press, 1933. Pp. 231. \$2.50.
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